

DX News

• Serving DX'ers since 1933 •

Volume 60, No. 29 - August 23, 1993 (ISSN 0737-1659)



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CPC Test Calendar

Call	Freq.	Date	EST Time
WSEZ	1560	Sept. 5, 1993	0130-0200
WCEI	1460	Sept. 5, 1993	0230-0300
WASB	1590	Sept. 5, 1993	0430-0500
WCEG	1530	Sept. 6, 1993	0130-0200
WEAM	1580	Sept. 19, 1993	0030-0100

From the Publisher ... Yep, the tests are back. Here are the address and program details:

WSEZ-1560 - P. O. Box 26 - Paoli, IN 47454 will conduct its test Sunday morning with code ID's.

WCEI-1460 - 306 Port St. - Easton, MD 21601 will conduct its test Sunday morning with code ID's and big band music.

WASB-1590 - 6675 Fourth Section Road - Rockport, NY 14420 will conduct its test Sunday morning with code ID's and contemporary music.

WCEG-1530 - P.O. Box 329 - Middleboro, MA 02346 will conduct its test Monday morning with code ID's.

WEAM-1580 - P.O. Box 766 - Columbus, GA 31902 will conduct its test Sunday morning with code ID's and Black gospel music.

The IRCA CPC says, concerning the WVHI-1330 test, if you are waiting for a verie, "Be patient." CPC chairman J. D. Stephens reports that chief engineer Ralph Turpen said that WVHI was "overwhelmed" with over 80 reports and is in the process of preparing a new photo QSL card to use with the reports. Also, if you'd like to join IRCA's "CPC Newsflash" postcard service for late-breaking tests, just send a half dozen or so self-addressed postcards to him at P.O. Box 605 - Huntsville, AL 35804-0605. Your last card will carry a message that your supply is exhausted.

Congratulations to Mr and Mrs. Fred Vobbe on the birth of their son Jonathan Cromwell.

Rick Dau is reactivating his College Sports Nets column; please send football broadcasting updates to 917 E. College St. - Iowa City, IA 52240-5543. Also, Rick is hosting the fourth annual Hawkeye Autumn DX GTG Oct. 30-31 at the Best Western Midway Hotel in Dubuque, IA [hotel reservations: (800) 528-1234]. Rick plans a tour of WDBQ-1490.

Charles C. Harrison offers his apologies for comments he made in #28: "Strike rather insensitive". Was

experimenting with Quantum loop which is a fine instrument. Did not wish to demean the loop or Gerry Thomas. What did I mean? What was I thinking of? Sorry." Okay, Charles; your penance is to read the article on Quantum Loop improvements in this issue!

DDXD-South editor Duncan Shaw's address has changed to Student Union #404 - Los Angeles, CA 90089-0895.

ANARC ... Don't forget that NRC members are eligible to run for an executive board position in ANARC, but we need your nominations so that we can make a decision on one person by, say, Saturday, September 4, at the convention in Enfield. Contact Paul Swearingen for details.

DXChange ... Ian H. Meyers - 105-03 Metropolitan Ave. - Forest Hills, NY 11375, (718) 575-5461 (8-10 pm) wants "desperately" to buy or have someone build for him, an antenna phasing unit, "for which they will be well-compensated".

Jay Smilkstein - 105 Manchester Drive - Mt. Kisco, NY 10549, (914) 666-6811 is wants to buy a working Superadio II, working or not, plus any Superadio with dual 110-220 voltage capabilities, and 6-gang tuning condensers from old AM/FM sets. He's also selling full-size AM and FM tuning condensers for tube radios.

Welcome to these new members ... Jerry M. Stuart, Lawton, OK; William D. Tilley, Swartz Creek, MI; Gary W. Froemming WB7CAG, Glendale, AZ; Peter Pompe, Kraainem, Belgium; Thomas N Seay, Georgetown, KY; Phil Irey, Bowling Green, VA; Walter Trellier, Erlanger, KY; James D. Strader, P. E.; Middleborough, MA; Don Bredesen, Louisville, CO; C. G. Tavares K6GOX, O'Neals, CA, to put our mailing at 705.

DX Time Machine

From the pages of DX News:

50 years ago ... from the Sept. 4, 1943 DXN: This year's NRC Convention consisted of a small gathering at the home of editor Ray Edge because of wartime restrictions. The most-distant attendees were Jim Wedewer, Washington, DC and Eugene Francis, Detroit, MI. One page of "Rules and regulations of the NRC" was published.

AM Switch

Jerry Starr
c/o WHOT Radio
4040 Simon Road
Youngstown, OH 44512-1320

Status changes in AM stations, supplied by the FCC and listeners

CALL LETTER WEIRDNESS! You may recall in the last AM Switch we made mention of monitors hearing WVOI-1520 Toledo, OH running IDs as "WJCM". Well, here's where it stands as of today. We called WJCM-960 Sebring, FL and they report they are still WJCM. So we called WVOI and it turns out they think they are also WJCM. Their story is that the FCC granted them WJCM and, yes, they know there is another WJCM in Florida and they believe their WJCM was granted through some sort of "snafu" at the FCC. However, the woman at the Toledo WJCM stated very firmly that they plan to continue to use WJCM until the FCC orders them to stop. One of our reporters notes they have even changed the big wooden "WVOI" letters on their transmitter building to "WJCM". So what gives here? It is not without precedent that the FCC may have accidentally assigned the same call to two different stations. We can recall of at least two other times this has happened. But we are somewhat suspicious in this case since WVOI's application for or grant of WJCM has NEVER appeared in any source of record we subscribe to. Again, this may have slipped through the cracks at the FCC or possibly the new management at WVOI does not have a complete understanding of the procedures in place for changing calls and may not have been "granted" WJCM at all. It will really be interesting to see how this plays out. In the meanwhile any DXer who can hear the 1520 WJCM should try for a verification as soon as possible, it may become a real collectors item. Don't you just love this stuff????

CALL LETTER CHANGES

Old call:	New call:	Old call:	New call:
590 KEZK IL Wood River	KFNS	1310 KLIX ID Twin Falls	KEZJ*
640 WROR MI Zeeland	WISZ	KONJ TX San Antonio	KXTN
750 WWAX PA Olyphant	WMXH	1400 WAZX GA Alpharetta	WVNF
860 WQXZ NC Taylorsville	WACB	1440 WUNI MI Bay City	WMAX
900 WODY VA Bassett	WCBX	1470 WKZN ME Lewiston	WZOU
980 KMZZ MN Richfield	KRXX*	KUFA UT Tremonton	KNFL
1050 KMBA NM Los Ranchos	KJHO	1400 WMIM FL Miami Beach	WSDH
1070 KCRB TX Houston	KRJB	1500 WKER NJ Pompton Lakes	WGET
1160 KVAR TX San Antonio	KENS	1520 KJIA SD Sioux Falls	KCCN
WCBX VA Fieldale	WODY	1550 WYNX GA Smyrna	WAZX*
1200 WFSF AL Ozark	WQLS		
1270 WCMR IN Elkhart	WTRN		

NOTES ON CALLS: Several station facility swaps are reflected above. The group that had leased the facilities of Alpharetta-1400 has purchased WYNX and moves their programming and the call WAZX to 1550. WODY-900 has purchased the facilities of new WCBX-1160 and is moving its call and programming there. KEZJ-1450 has purchased KLIX-1310 and has already moved call and programs there, no word on what call now belongs on the abandoned 1450 facility or if that facility still exists. It is presently silent and there is unconfirmed speculation that the license for this one may have been surrendered. KMZZ-980 change to KRXX repairs a typo from another source that gave the new call as KRXX which we reported in Issue 27.

KING 1090

Redmond

APPLICATIONS/GRANTS FOR NEW STATIONS

None

APPLICATIONS FROM EXISTING FACILITIES

860 WHRT AL Hartselle: to 890 kHz with 5000 D1
1330 KDRQ ND Wishek: powers to 253/108
1390 WHOT OH Youngstown: daytime power to 9500 watts

GRANTS TO EXISTING FACILITIES

610 WEXS PR Patillas: day power to 250 watts
620 WSKQ NJ Newark: relocate transmitter site, city of license to Rutherford, NJ
650 WKKQ MN Nashauk: night power to 1000 watts
700 CHSJ NB St. John: powers to 25000/10000
730 KBSU ID Boise: powers to 15000/500, antenna to U4
760 WVNE MA Leicester: power to 25000 (8600 CH)
800 KLTT CO Brighton: powers to 2500/190, antenna to U4
950 CHER NS Sydney: antenna to U2
1040 KEZF OR Tigard: powers to 500/500, antenna to U2, city of license to Beaverton, OR
1130 KAAB AR Batesville: add 20 watts nights, antenna to U3
1310 WAYC PA Bedford: power to 2500 watts
1360 KFFA AR Helena: night power to 90 watts, antenna to U1
1430 KBIL TX Breckenridge: relocate transmitter site
1520 WXYB FL Indian Rock Beach: power to 600 watts, relocate transmitter site
1530 WJDM NJ Elizabeth: power to 1000 (670 CH)

OTHERNESS

540 CJSB ON Ottawa: station has requested to cease operations on AM as soon as new FM facility is operational
640 WWJZ NJ Mount Holly: station is SILENT
710 CHYR ON Leamington: station has dismantled all but one AM tower and is operating 5000/5000 U1 and will remain on the air until one week after their new FM 96.7 is on the air. This is scheduled for 8/7. They will then surrender their AM license. The night operation on 730 kHz is already history.
CIPC PQ Port-Cartier: will surrender its AM license as soon as their new FM facility on 99.1 MHz is operational
730 WSTT GA Thomasville: silent station is ON THE AIR and is simulcasting WTAL-1450 Tallahassee, FL
750 WWAX PA Olyphant: silent station is ON THE AIR
790 WQSV TN Ashland City: station is no longer simulcast on WQSE-1030 kHz
820 WSCR IL Chicago: application to add night power DISMISSED
900 WODY VA Bassett: has purchased the CP for WCBX-1160 and will move there leaving the 900 facility SILENT
920 WTCW KY Whitesburg: CP to reduce day power to 4200 watts is on.
WYMB SC Manning: is here 5000/1000 U2 from 1410 kHz
1000 WZTN AL Montgomery: license CANCELLED and call DELETED
1020 WPRJ MI Mount Pleasant: CP for this new station expired and was not renewed, they "gave up years ago when they could not get zoning approval for their towers" according to WSMZ (FM) the licensee of WPRJ
1050 KNOB CA Frazier Park: new station is ON THE AIR
1070 KMOM MN Monticello: silent station is ON THE AIR



- 1090 WKCW TN Kingsport: according to the station they have a night power of 810 watts which would make them U1. The FCC engineering database does not show this power.
- 1160 WODY VA Fieldale: CP for this new station is ON THE AIR. WODY moves here from 900 kHz.
- 1190 KHAD MO DeSoto: silent station is ON THE AIR
WLIB NY New York: application to become full time and move to 1200 kHz has been DISMISSED
WMAD WI Sun Prairie: silent station is ON THE AIR
- 1200 WQLS AL Ozark: silent station (ex-WQSF) is ON THE AIR
- 1230 KBZB AZ Bisbee: silent since 1985, will be "on the air in the near future" according to licensee.
KLIC LA Monroe: silent station is ON THE AIR
- 1250 WDVA VA Danville: silent station is ON THE AIR
- 1260 KRKE CO Aspen: station is SILENT
- 1270 WSPR MA Springfield: silent station is ON THE AIR
- 1290 KOIL NE Omaha: following up on last issue it now appears that this now-silent facility will simulcast KKAR-1180, not replace it.
- 1320 WCVG KY Covington: in issue 27 we reported several monitors hearing a call change to WNKR here but cautioned that we had not seen anything official. Now it turns out that WCVG was simulcasting WNKR(FM) Williamstown, KY for a short period but never changed calls. This simulcast is no longer in effect.
- 1340 WNBS KY Murray: this silent station was scheduled to return to the air 6/21/93, can anybody confirm if this actually took place?
WGAW ME Gardner: silent station is ON THE AIR and, as expected, is simulcasting WERO 1470.
WJMB MS Brookhaven: station is SILENT
- 1360 KWJJ TX Baytown: CP for 5000/1000 is on
- 1380 KKFH TX Beaumont: silent station is ON THE AIR
- 1390 WKHF FL Avon Park: silent station is ON THE AIR
- 1430 KNSP MN Staples: silent station is ON THE AIR
WBRL SC Batesville: silent station is ON THE AIR
- 1440 WSEL MS Pontotoc: silent station is ON THE AIR
- 1450 KEZJ ID Twin Falls: station is SILENT as KEZJ purchases and moves to ex KLIJ-1310, status of this 1450 facility is unknown
KIOV ID Payette: station is SILENT
- 1460 WKDV VA Manassas: silent station is ON THE AIR
- 1470 WXAG GA Athens: station is SILENT
WVBS NC Burgaw: station is SILENT
KNFL UT Tremonton: silent as KUFA, is ON THE AIR
- 1480 WKGF FL Arcadia: silent station is ON THE AIR
KRXR ID Gooding: silent station is ON THE AIR
WNKY KY Neon: station is SILENT pending a sale
- 1490 WOTA MS Vicksburg: silent station is ON THE AIR, reported to have changed calls to WBIX but we have not seen this change officially listed yet.
- 1510 WSSH MA Boston: station went silent 7/15 but returned to the air 7/26 (with a new Spanish format)
KJMC TX Mineola: silent station is ON THE AIR, reportedly has changed city of license to Canton, TX but we have not seen this even as an application yet.
- 1520 WITM TN Elizabethton: silent station is ON THE AIR and joins the ever-growing list of stations that are simulcasting WKPT-1400

- 1530 WJEM NJ Elizabeth: CP for 1000 (670 CH) is on
1580 WAMY MS Amory: CP for 1000/280 is on
1590 WETT MD Ocean City: one tower in their night array fell
down, temporarily operating daytime only, hope to
be back on with a lower night power until system
can be repaired
1600 WKXF KY Eminence: CP for power decrease to 320 watts is on
KEED OR Eugene: station is SILENT due to fire

THANKS: Dave Schmidt, Bruce Conti, David Lewis, Wayne Heinen, Tom Bryant, Shawn Axelrod, Jeffery Less, John D. Bowker (great having you visit here at AMS Central, John!), Al Quagliieri, Ed Krejny (another recent visitor), Perry Crabill Jr. Les Cooper and MSJ.

A MILD PROTEST! In a recent DX Time Machine under the heading of "25 Years Ago" I was shown as being 28 years old. BALDERDASH! In 1968 I was 25 years old. Give me a break Paul, time is whizzing past fast enough already. A 25 year-old typo coming back to haunt me? Foonman, on the other hand, may be older than that, MUCH OLDER although she has a certain timeless quality.

73 and Good DX, *Jerry & BKF* Jerry Starr & Buffalo K. Foorman

1000 WPC 1280 K
LAKE WALES, FLA.
The Voice of Superior Polk County

KNWZ 1300KZ
1000 WATTS OF Spectacular **Realistic K&B AM**
Turkey Cities of the West
TYLORCE, CALIFORNIA

WAL
1000 WATTS OF Superior Polk County
EL OLAF COLLEGE • NORTHFIELD, MINNESOTA

KTUR
1000 WATTS OF Superior Polk County
TYLORCE, CALIFORNIA

KNWZ 1300KZ
1000 WATTS OF Spectacular **Realistic K&B AM**
Turkey Cities of the West
TYLORCE, CALIFORNIA

WAL
1000 WATTS OF Superior Polk County
EL OLAF COLLEGE • NORTHFIELD, MINNESOTA

National Radio Club

AM Radio Log

Fourteenth Edition

Complete listing of U. S. and Canada AM Radio Stations

Radio Station KBLO
NATIONAL PARK BROADCASTING CO.
Mill Creek, Ariz.
Hot Springs National Park, Ark.

WSUX RADIO STATION
CHUB SEAFORD, DELAWARE

THE MIGHTY WKOK
AM 88 FM
Midnight Sun Broadcasting
KPEG
K8UN

WXXW
AM 1450
RADIO STATION WCAT
1981 NATIONAL BANG MIDS
ATHOL, MASSACHUSETTS

W-M-B-I KSIW
MOODY BIBLE INSTITUTE
133 HUNTER PLACE
CHICAGO, ILL.

KUJ WDOR WRKT
STUDION BAT, WISCONSIN
The Voice of Cheyresland

WMPX RADIO
1460
1000 WATTS OF Superior Polk County
RENTON, WASHINGTON

KZZUA
1450
1000 WATTS OF Superior Polk County
RENTON, WASHINGTON

KIML
1000 11770
1000 WATTS OF Superior Polk County
RENTON, WASHINGTON

WMPX RADIO
1460
1000 WATTS OF Superior Polk County
RENTON, WASHINGTON

KZZUA
1450
1000 WATTS OF Superior Polk County
RENTON, WASHINGTON

KIML
1000 11770
1000 WATTS OF Superior Polk County
RENTON, WASHINGTON

PORTAGE LA PRAIRIE, MAN.

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Mail to: NRC Publications - Box 164 - Mannsville, NY 13661 (NY residents add sales tax)

Domestic DX Digest

North: Bill Hale

495 Creekview Drive - Meridian, ID 83642-3241

South: Duncan Shaw

2618 Ellendale Place, #3 - Los Angeles, CA 90007

East: Dave Braun

11 Mill Bend Acres - Wyoming, DE 19934-9523

DX Catches in the U. S. and Canada, with 24-hr. FLT

DDXD-North



MEDIUM WAVE RAILINGS



- **Hear Ye, Hear Ye, Hear Ye!** Effective immediately, reports to DDXD-N which are not divided into *Special*, *Tests*, *UNIDS*, *TIS*, and the appropriate time divisions in frequency order will be omitted. If you can't take a few minutes to divide your reports, thus saving me the trouble of skipping back and forth all over your page(s) of DX, then save your postage in the first place. 99% of my reporters do this small task. So it can't be that difficult. I have requested this in several previous columns, obviously falling on deaf ears. Also, make sure what you report is **real DX**, not everyday, or every night, receptions.
- **Item Two.** I have received many inquiries from contributors over the years inquiring . . . *why don't you (and other DDXD columns) print mailing addresses of the DXers? Yet those who Muse, have their addresses printed.* My only response has been that *That's the way it's always been.* Okay. From now on, if you want your address along with your name, printed in this column, make that fact known to me in your next report, and **sign your name to that statement.** This gets me (and DX News) off the hook. I know the *other club(s)* print addresses, so why can't we? Stir, stir, stir!
- A note from the markedly-absent-from-this-column **Dave Evans** announces he has moved from Metro Montreal, and is now blissfully DXing from Brossard, Ontario which is just across the St. Lawrence [Larry before sainthood, hi - Ed.] River from Massena, NY. That explains why he used 50 cents worth of gas to drive over the border to save 20 cents on postage, hi hi! Good to have you back, Dave. We'll be expecting mucho more DX from you now that you're clear of the Montreal biggies.
- More DX goodies from the shindig at Pillings, courtesy of **Mike Sanborn**, and the **Hardy** clan. Plus **Shawn Axelrod** asks the musical question . . . *Who says there is no DXing in July? Three new ones in July.* Read on.
- The deadline for DDXD for Issue 30 (*The New Year's Eve Issue* of the DX Season, hi) is September 4th. Deadlines for the first few issues of Volume 61 will appear in that issue. Once Volume 61 starts, there are 13 consecutive weeks of **DX News** scheduled to appear in a mailbox near you. So there isn't much figuring to do, as deadlines are always Saturdays. Oh . . . one last thing. Mail early, as I heard they are now polishing all mail trucks with **Turtle Wax**.
- Welcome to Issue #210 from this editor. That's six years . . . with no missed issues.

SPECIAL

- 800 CKLW ON Windsor - Stopped using CLs, and IDs only as **AM 800**. Has increased sports Programming (**Blue Jays**) nights and weekends and is now *Windsor's news, sports and weather station.* (TS-MI)
- 980 KRXX MN Richfield - 7/14 2305 - Good with Sioux Falls vs St. Paul baseball. Several **KRXX 980** IDs. New call now in use. (SA-MB)
- 1040 KEZF OR Tigard - 7/31 1500 - New station is on the air with contemporary Christian format. Missed official ID. Per an Oregon DXer, they are 24 hours and carry the **K-Love** network, which is comprised of **KRVC-730** Medford and **KRDG-1330** Redding, CA plus several FMers. (BH+NH-OR)



- 1090 CKRX AB Lethbridge - 6/28 0323 - Heard Rock Radio Network program. ID: *1090 Rock CKRX Lethbridge, Alberta.* CKRX *Win Sticker* promo. ID: *The new 1090, CKRX, Southern Alberta's best rock.* Over **KBOZ**. Ex: **CHEC**. (MS-MT)
- CKRX AB Lethbridge - 6/28 0556 - Strong with ad break on the *Rock Radio Network*, mentioning . . . *the new 1090, CKRX.* At 0600, *Broadcasting to the world via Anik satellite, you're listening to Overnight*, then album rock. CL and format change. Ex: **CHEC**, *adcon/oldies*. Also noted strong on 6/26 at 0601 in Billings, but no CLs heard there. (BH-WY1)
- CKRX AB Lethbridge - 7/23 0650 - Fair ⇒ good with rock music by **Red Hot Chili Peppers**, **Black Crows** & **Pearl Jam**. IDs as **CKRX**, *Southern Alberta's Best Rock*. Ex: **CHEC** and new! (SA-MB)
- CKRX AB Lethbridge - 8/3 0650 - Poor with *Legs* by **ZZ Top** (assumed it was them) behind **KBOZ**. Not sure, so not counting it. [Ed.-ID]
- 1230 KKBK MT Hardin - 6/27 1800 - Noted Silent while driving through town. (BH+NH-MT2)
- 1480 KMEM NE Lincoln - 7/16 0648 - Very good with **KMEM** *the Memory Station* and **KMEM** IDs between NOS and adult standards songs. Ex: **KFMQ** and back on the air. New. (SA-MB)
- 1600 KEED OR Eugene - 7/31 1815 & 2245 - Noted Silent while in Eugene. Thanks to **Guy Kudlemeyer** for tipping us to this silence. (BH+NH-OR)

UNIDS and UNID HELP

- 680 ESQ MT? - 7/3 1455 - Beacon repeating **ESQ** noted just north of West Yellowstone. Image? Harmonic? (BH+NH-MT3)
- 870 WKAR MI East Lansing - Is probably **LK's** unID of 4/24. They've had SS music shows on Saturday and Sunday mornings for a long time, and polkas are as much a part of Mexican as Polish popular culture. (TS-MI)

STORMY WEATHER

- 1110 CKTY ON Sarnia - 7/3 2247 - With ID, storm warnings, ⇒ C&W. I received this in Montreal last year (Vol 60, Issue 7), as did **Jeff Kitz** of Virginia earlier. Again, signal was good for 1 kw, as at 10:47 PM was too late for day power. I must have missed something along the way! (DE-ON) [Maybe the *storm warnings* warranted their staying on day power/pattern. Their night signal should be pipe dreams for you that far east - Ed.]
- 1120 KMOX MO St. Louis - 7/10 2357 - Fair with flood update with instructions for those who require shelter, desire to assist, etc. CBS News at :00, followed by local news with **Bob Hamilton** at :06 reporting no new breaks on levees today. Then weather and announcement that next scheduled update would be at :55. (TR-IL)

TIS & OTHER STUFF

- 530 TIS MT Missoula - 6/23 & 7/4 - Reserve Street construction info. No CLs given. Awfully close to 521 kHz frequency of 1kw beacon **INE**. (BH+NH-WA)
- WMYD255 WA Ritzville - 7/6 1409 - Folksy male announcer with things to do and see in Ritzville, operated by city. (BH+NH-WA)
- 1610 KOP796 MT Deer Lodge - 6/24 1345 - TIS from Grant-Kohrs Ranch National Historic Site with folksy, male announcer. CLs announced. (BH+NH-MT)
- (TIS) MT Earthquake Lake - 7/3 1425 - Noted that former TIS at visitor center, heard in 1979 and 1982, is no longer here. (BH+NH-MT3)
- TIS MT West Yellowstone - 7/3 1500 - Saw a sign for a TIS on 1610 at the west entrance to Yellowstone Park, but no audio on this one. (BH+NH-MT3)
- TIS SD Keystone - 6/30 0950 - Saw highway sign *Tune radio to 1610* and heard message for Custer State Park, but was distorted with music and cut off after 45 seconds and repeated! No CLs given. (BH+NH-SD)



- 1610 KNEF687 WA Cle Elum - 6/23 1145** - Blewett Pass State Highway 97 construction milepost 165-169 with 40 second loop, no beeps. Antenna at milepost 84½. (BH+NH-WA)
- KNEF687 WA Ellensburg - 6/24 1211** - Same message at Cle Elum, but with two loud beeps between tape loops. Antenna at Exit 106. (BH+NH-WA)
- (KNEF687) WA North Bend - 6/23 1050** - TIS for Snoqualmie Pass road conditions was off as usual during the summer. (BH+NH-WA)
- (KNEF687) WA Snoqualmie Summit - 7/7 1258** - Noticed a sign to tune to 1610 for road conditions when lights flashing on westbound I-90, but lights not flashing, so off for summer. (BH+NH-WA)
- TIS WY Yellowstone Nat'l Park - 7/2 1614** - At East Entrance to park, with male and female voices with info about entering. (BH+NH-WY)
- TIS WY Yellowstone Nat'l Park - 7/2 1650** - At fishing bridge. Message discusses protecting yourself from wild animals. Lady mentions hanging things ten feet above the ground and 4 feet from the nearest object. Man discusses damage from 1998 [1998 fires? - Ed.]. Later near Canyon, same message scripts but roles are reversed - lady discusses fire, man talks about wild animals. (BH+NH-WY)

550 Radio WSAU

602 Jefferson Street • P.O. Box 5505
Wausau, Wisconsin 54402-5505

MIDNIGHT TO 0800 HOURS ELT

- 550 KFYR ND Bismarck - 6/30 0115** - Good with AC music. 0120 sports, weather and more music with a local, live DJ. *K-Fire* slogans and *KFYR* calls. Refreshing to hear local-live AC on AM. (BH-SD1)
- 560 KLZ CO Denver - 6/30 0126** - Strong with lady DJ on *56 KLZ* ⇒ C&W song *Achy Breaky Heart* with religious lyrics! Another country-religious song, and at 0134 lady DJ on *Colorado's Christian Station*, then commentary 'til 0138. Gave KLZ address and phone for comments, back to religious country. This must be where their night signal goes, as rare at home [Yup. Their U3 signal goes straight up toward Cheyenne and up the Montana-Dakota Territory border. Also goes 180° the other way - Ed.]. Also noted in daytime 6/30 1245 on I-90 east of Rapid City. (BH-SD1)
- 580 CKY MB Winnipeg - 6/30 0125** - Good with *KY-58* slogan during *Oldies Coast to Coast*. (BH-SD1)
- 600 KHTE CA Redding - 7/17 0657** - No call letters heard, but many references to *Northern California*. Slogan *KNR Newsradio* noted. Has there been a format and clandestine [hi] call letter change made here? Last heard in November with SMN Oldies. [Ed.-ID]
- KSJB ND Jamestown - 6/30 0140** - With IRN weather. 0141 with local weather drop-in and local ad. Good atop unID music. (BH-SD1)
- 630 KHOW CO Denver - 6/30 0152** - Good with lady ending *KHOW 95.3* music set and ⇒ ads. Then faded. (BH-SD1)
- 730 WJMT WI Merrill - 8/4 0712** - Heard with . . . *54 degrees at WJMT*. (RD-IA)
- 740 WRPQ WI Baraboo - 7/15 0120** - Poor with oldies. A new logging and rare to boot. (TR-IL)
- 790 KGHL MT Billings - 6/30 0200** - Good with C&W music to legal ID, then CBS News. Night pattern goes here [The 090° lobe, yes - Ed.]. (BH-SD1)
- 800 CKKY AB Wainwright - 6/28 0100** - Strong with news and ID: *Country's hottest stars play here - Key 83*. (MS-MT)
- 910 KJJQ SD Volga - 7/21 0700** - Weak, but heard their CLs, then faded out. (JB-WI)
- CKDQ AB Drumheller - 8/3 0714** - Fair with C&W music, ad for a *New Holland* implement dealer in Linden, PSA and back to C&W. Many *Continuous Country Q-91* and *910, Q-91* mentions. [Ed.-ID]
- 920 KDHL MN Faribault - 7/21 0655** - Good with polka music. Not a 1st-timer, but unusual for me as WOKY dominates the frequency here. (JB-WI)
- 930 KROE WY Sheridan - 6/28 0445-0610** - Noted 24 hours with Unistar satellite country. Local. (BH-WY1)
- 930 CJCA AB Edmonton - 7/15 0703** - Good with *Newstalk 930 CJCA* slogan, weather (9°), sweet sounding *Carmel Kilcaine* and not-so-sweet (hi) *Tom ???* alternating news stories. Then a tele-talk discussion about children committing murder. New. [Ed.-ID] Heard again 8/3 0650.

- 940 CJGX SK Yorktown - 6/28 0156** - With C&W music and ID: *The station with more fun, GX-94*. Top of hour ID: *CJGX 94 Yorktown, serving Manitoba and Saskatchewan, we are GX-94*. (MS-MT)
- 960 WDLN IL East Moline - 7/6 0640** - Fair with CLs, weather, then REL music. (JB-WI)
- 970 WDAY ND Fargo - 6/30 0100** - Good with ID *Newstalk WDAY, Fargo-Moorhead*. NBC News. (BH-SD1)
- 990 CBW MB Winnipeg - 6/28 0205** - Concluding programming and into sign-off. Dominant. (MS-MT)
- 1050 CJNB SK North Battleford - 6/28 0242** - With ID: *This is Northwest Radio CJB/CJNX*. Weather and C&W music by *Travis Triitt*. Background QRM from XEG and CFGP. Logged in California. (MS-MT)
- 1070 KNX CA Los Angeles - 6/28 0305** - Huge signal here with IDs and usual news programming. (MS-MT)
- 1090 KBOZ MT Bozeman - 8/3 0700** - Good with A-Info News, then Montana weather ⇒ C&W music. Maybe CKRX in background. [Ed.-ID]
- 1130 KBMR ND Bismarck - 7/2 0720** - Strong with C&W music, report on local street flooding from 2.7 inches of rain. 0725 NBC Sports. Still in at 0750 with more local reports. 0800 NBC News. Local KAMQ-1140 off 'til 0805. Elusive at home! (BH-WY2)
- CKWX BC Vancouver - 6/28 0554** - Good over KWKH with local and national ads, promo for *Blue Jays* baseball on CKWX, then *Country Coast-to-Coast*. Strength this far east surprised me. (BH-WY1)
- 1230 KZLO MT Bozeman - 6/24 1650** - Ending ads on *Fox Country 99.9 FM KZLO*, weather and ⇒ country simulcast. Ex: *KBMN*. (BH+NH-MT)
- 1260 KPOW WY Powell - 7/2 0759** - With full-data sign-on, ABC-Info News. Not 24 hours. Semi-local. (BH-WY2)
- 1310 WCCW MI Traverse City - 7/20 0734** - Good, over WIBA, with MLB scores, ID, and mention of Satellite News Network. (JB-WI)
- 1340 KWOR WY Worland - 7/2 0655** - Noted on air with SMN AC and Mutual News. Apparently 24 hours. Semi-local. (BH-WY2)
- 1400 WRJN WI Racine - 8/4 0638** - Fair with *Radio 14, WRJN* ID. (RD-IA)
- WRDB WI Reedsburg - 8/4 0656** - Good with DJ: *Good morning at WRDB/WNFM* ⇒ weather. (RD-IA)
- 1410 KWYO WY Sheridan - 6/28 0500-0600** - Noted 24 hours with local country format. Local. (BH-WY1)
- 1430 KLO UT Ogden - 6/26 0600** - Strong, ending AC music and *KLO Ogden* jingle, ABC Info News. (BH-MT1)
- 1440 WROK IL Rockford - 7/22 0645** - Fair with CLs, then farm program *RFD Morning Summary*. (JB-WI)
- 1490 ?KBOL? CO Boulder - 6/30 0758** - Fair with SSB, full-data sign-on. Thought I heard *KBOL* calls, but no city or address given. Into ABC news at 0800, then covered by local KFCR. (BH-SD1)
- KFCR SD Custer - 6/30 0758** - With carrier, then at 0800:15 *KFCR Custer* ID out of nowhere to join *NSC News* (part of a satellite AC feed) in progress. Sounded like the employee had walked into the building a moment late, turned it on, and pushed the satellite button. Station leaves the air nightly at 2000 or 2100, and has a weak signal, even at the main highway junction in Custer. Suspect tower is east or south of town. (BH-SD1)
- 1540 KXEL IA Waterloo - 6/28 0357** - With IRN program, ad for *Flying Lure*, C&W music. ID: *America's all-time greatest country music station, 1540, KXEL Waterloo*. (MS-MT)
- 1570 WFRL IL Freeport - 7/22 0706** - Fair with CLs and weather report. (JB-WI)

AM 1530
WKCY
NewsTalk

0800 TO 1600 HOURS ELT

- 550 KRAI CO Craig - 7/2 1005** - Ending Colorado news *Wherever you go in Northwest Colorado, take us along, 55 Country*. Local C&W in AM drive, Unistar satellite later. 1200 and 1300 legal IDs *KRAI-AM Craig is 55 Country*, then TC and CNN News. Good groundwave signal. (BH-WY1)

- 590 **KGLE** MT **Glendive** - 6/30 1242 - Fair with REL music, mention of upcoming show from Moody network and REL commentary. On I-90 east of Rapid City. (BH+NH-SD)
- 630 **KKPL** WA **Opportunity** - 7/6 1401 - Between C&W songs, *Today's hot new country, from KNFR-FM and KKPL-AM, Opportunity, Spokane, and Coeur d'Alene, it's 96 Frog FM.* Ex: **KHDL**, which was CNN Headline News. (BH+NH-WA)
- 660 **KEYZ** ND **Williston** - 6/30 1250 - Good with local break in C&W format, *Newsradio 660, Keys Country.* (BH+NH-SD)
- 680 **CFTR** ON **Toronto** - 6/21 1400-1430 - First time with all-news. No CLs, but lots of slogans . . . *20 minutes of news every 20 minutes, Toronto's only all-news station and Traffic on the ones.* Fair - distant, but in the clear. (TS-OH)
- 690 **KOAQ** NE **Terrytown** - 6/30 1255 - Good with satellite oldies. mentioned AM Stereo. Had AP News. One-thousand watts gets out well in this area of good groundwave east of Rapid City. (BH+NH-SD)
- 710 **KNUS** CO **Denver** - 6/30 1300 - Fair with legal ID **KNUS Denver**, and **AM 1130, the all-new KHTH, Dillon-Breckenridge.** ⇒ CNN News. (BH+NH-SD)
- 730 **KWOA** MN **Worthington** - 6/30 1258 - With farm prices. 1300 *That's how the markets are shaping up from AM 730, KWOA Worthington. It's 12 Noon, time for news. 68° and cloudy skies.* Good signal for distance. (BH+NH-SD)
- 900 **KKRT** WA **Wenatchee** - 6/23 1200 - Ads messing up across hour (playing twice). 1201:30 joined CNN Headline News in progress. (BH+NH-WA)
- KKRT** WA **Wenatchee** - 7/7 1157 - Noted legal ID on 104.9 FM, **KSSY, KKRT Wenatchee's rock and roll difference.** Checked 900 and, in fact, the rock music was !! That narrows down the dates for this format change! (BH-WA)
- 970 **KTRW** WA **Spokane** - 6/23 1558 - Ending *Al Bernstein's Sports Party* on American Sports Network. Net ad, and at 1600 *Sportsradio, AM 970 The Score, KTRW Spokane* ⇒ Unistar News. Format and slogan change from *True Country*, but no CL change. (BH+NH-WA)
- 1050 **KEYF** WA **Dishman** - 7/6 1353 - With several ads, quick "throwaway" ID between ads. **KEYF-FM Cheney, KEYF-AM Dishman** and more ads. All other times of the hour they are *Oldies 101.1.* (BH+NH-WA)
- 1140 **KZMQ** WY **Greybull** - 7/2 0805:15 - Popped on the air in the middle of ads || 100.3. No legal ID. 0806 local **KZMQ** drop-in while rejoining SMN country feed. Local (BH-WY2)
- 1150 **KQQQ** WA **Pullman** - 6/23 1400 - ID and into ABC News. Still not moved to 650. Good near Moses Lake. (BH-WA)
- 1230 **WCWA** OH **Toledo** - 6/21 1300-1400 - With Kool Gold, over/under unID between East Townsend and Oberlin, then gone. (TS-OH)
- 1310 **KEIN** MT **Great Falls** - 6/24 1310 - Noted with *America's Best Country* via SMN. No longer SMN Kool Gold. (BH+NH-MT)
- 1400 **KODI** WY **Cody** - 7/2 0800 - Sign-on and into local oldies format. Not 24 hours. Semi-local. (BH-WY2)
- 1450 **KRBN** MT **Red Lodge** - 6/27 1100 - With ID: **KRBN Red Lodge, mountain music.** TIS-type announcements and EZL music. (MS-MT)
- 1490 **(KBSR)** MT **Laurel** - 6/27 0830 and 0915 - Local noted off 24 hour schedule. Was back on by 0955, going from satellite oldies to local SS at 1000. (BH-MT1)



1600 TO 2400 HOURS ELT

- 560 **WGAN** ME **Portland** - 7/3 2128 - Good signal with **WGAN Tag Sale on Sunday at 10 AM** ⇒ **Bruce Williams.** (DE-ON)
- 570 **WSYR** NY **Syracuse** - 7/3 2130 - Fair with **Bruce Williams** giving plug for station. (DE-ON)
- 580 **KANA** MT **Anaconda** - 6/24 1600 - Ending promo for recent winner of classic car, *Your 50s rock and roll station, KANA Anaconda. It's 2 O'Clock.* Back into more SMN Kool Gold. **Had been listed as silent last year.** This was Nancy's favorite station of the vacation trip. [Excellent taste, hi - Ed.] (BH+NH-MT)
- 600 **CIQC** PQ **Montreal** - 7/3 2133 - The **Expos'** Flagship station with *Five to two Expos after six. Now talk/C&W.* Poor for 70 miles - signal goes down the St. Lawrence, and I'm up. (DE-ON)

- 610 **WGJR** NH **Manchester** - 7/3 2141 - Up over WIP with my first hearing of the death of Don Drysdale in Montreal. (DE-ON)
- WIP** PA **Philadelphia** - 7/3 2137 - With sports discussion on Roger Clemens and ID as *Sports Radio 610 - WIP.* 1st-timer. (DE-ON)
- 630 **KXOK** MO **St. Louis** - 7/16 2255 - Fair with oldies. (TS-IL2)
- CHLT** PQ **Sherbrooke** - 7/3 2151 - **Expos-Dodgers** baseball in FF, over/under CJET, discussing death of Don Drysdale. (DE-ON)
- 690 **KGGF** KS **Coffeyville** - 7/30 2130 - Fair with **KC Royals** baseball. (RD-IA)
- 700 **WLW** OH **Cincinnati** - 7/3 2155 - With **Reds-Pirates** baseball. What a difference when you move out from under CBF/CBM transmitters! (DE-ON)
- 790 **WTNY** NY **Watertown** - 7/3 2200 - With ID. CJAD can't stop this one now. 1st-timer. (DE-ON)
- KFGO** ND **Fargo** - 7/30 2333 - Arose suddenly out of a mess with **Minnesota Twins** baseball. (RD-IA)
- 800 **CHRC** PQ **Quebec** - 7/3 2205 - Fighting 3-way battle with CKLW and weakened CJAD on 10 kw night power. Interesting for an ex-Montrealer. (DE-ON)
- 850 **KOA** CO **Denver** - 7/16 2250 - Fair with ads for Denver-area businesses. QRM from CKVL. (TS-IL2)
- CKVL** PQ **Verdun** - 7/16 2249 - Fair with call-in show in FF. QRM from KOA. (TS-IL2)
- 920 **KWYS** MT **West Yellowstone** - 7/3 2300 - Full-data sign-off . . . *owned by GNP Inc. of Bozeman.* Studios across from city park at 135 Gibbon Avenue. Transmitter 1/4 mile south of town on the Boundary Trail. *Serves our nation's first national park with 1000 watts.* Main format is country, but runs *Casey's Countdown* AC show and had local oldies show on Saturday 2100-2300. **EZL-CLA Sunday AM.** A California DXer says Sunday sign-off is 1 PM local time! (BH-MT3)
- 950 **WIBX** NY **Utica** - 7/3 2235 - Good signal with ID, sports and eulogy for Don Drysdale. (DE-ON)
- 1090 **?KBYG?** CO **Aurora** - 6/30 1725 - Poor with **K-Big AM and FM.** Tentative with sportstalk and Colorado ads. (BH+NH-SD)
- 1220 **KOMC** MO **Branson** - 7/30 2149 - Weak with **Royals** baseball. (RD-IA)
- 1230 **KZLO** MT **Bozeman** - 6/24 1650 - Ending ads on *Fox Country 99.9 FM KZLO.* Weather and ⇒ country simulcast. Ex: **KBMN.** (BH+NH-MT)
- 1270 **WRJC** WI **Mauston** - 7/30 2139 - Good with **Brewers** baseball. (RD-IA)
- 1320 **KOLT** NE **Scottsbluff** - 6/30 1733 - Fair signal ending market report, and back to **Pete Rose's** sportstalk show . . . on *Wyobarska's favorite radio station, 1320 KOLT.* (BH+NH-SD)
- 1360 **KKBJ** MN **Bemidji** - 7/6 2130 - Fair with ad for a car dealer. Heard **Bemidji** mentioned a couple of times, then faded out to a mix of WVRQ and WGEE. (JB-WI)
- 1400 **KEYL** MN **Long Prairie** - 7/30 2302 - In for a while with **Twins** baseball. Last time heard was morning of 2/9 92. (RD-IA)
- WBIZ** WI **Eau Claire** - 7/30 2304 - Fair with ID: *Catch all the action of the 1993 Milwaukee Brewers here on Sportsradio 1400, WBIZ, Eau Claire,* then back into . . . what else, but **Brewers** baseball! (RD-IA)
- 1450 **KMMS** MT **Bozeman** - 6/24 1658 - Ending **Larry King.** 1700 UPI news. 1706 back to Larry. 1800 ID mentioned they carry **Rush Limbaugh,** then into CNN Headline News. (BH+NH-MT)

REPORTERS



PIONEER OF THE WEST
KLZ-AM
DENVER, COLORADO-U.S.A.
560 KC. 5000 WATTS

- TS-MI** Tom Sanders Davison, MI; Sony ICF-2010
- TS-OH** Tom Sanders Oberlin, OH; JVC car radio
- DE-ON** Dave Evans Cornwall, ON; DX-440, TM-152S, SRFA1S, Select-A-Tenna
- TR-IL** Thomas Reiser Chicago, IL; Sony ICF-2003 w/built-in antenna
- TR-IL2** Thomas Reiser Manteno, IL; Sony ICF-760
- MS-MT** Mike Sanborn (Bellflower, CA) in Billings, MT (IRCA Convention); GE Superadio II
- JB-WI** John Baumgarten Tomah, WI; Delco car radio or GE Superadio
- BH+NH-MT** Bill & Nancy Hardy (Aberdeen, WA) on I-90 between Missoula & Bozeman, MT; Chevrolet Astro Van radio

BH+NH-MT2 Bill & Nancy Hardy on I-90 near Hardin, MT; Chevy Astro Van radio
BH+NH-MT3 Bill & Nancy Hardy near Yellowstone, MT; Chevy Astro Van radio
BH+NH-OR Bill & Nancy Hardy in I-5 in Portland or Eugene, OR; Chevy Astro Van radio
BH+NH-SD Bill & Nancy Hardy on I-90 east of Rapid City, SD; Chevy Astro Van radio
BH+NH-WA Bill & Nancy Hardy on I-90 across Washington State; Chevy Astro Van radio
BH+NH-WY Bill & Nancy Hardy in Yellowstone National Park; Chevy Astro Van radio
BH-MT Bill Hardy Billings, MT; GE 7-2963A multi-band portable
BH-SD Bill Hardy KOA Campground between Hill City and Mount Rushmore, SD; GE 7-2963A
BH-WY1 Bill Hardy KOA Campground, Sheridan, WY; GE 7-2963A
BH-WY2 Bill Hardy KOA Campground, Greybull, WY; GE 7-2963A
SA-MB Shawn Axelrod Winnipeg, MB; ICOM R-70 + 4' box loop
RD-IA Rick Dau Iowa City, IA; R-1000 + RW Loop; 984 heard in Iowa City
Ed-ID Editor Meridian, ID; Sony ICF-2010 barefoot

GRAVEYARD DX UPDATE



1230 kHz:							
KWOR WY Worland	Bill Hardy	Greybull, WY					31
1400 kHz:							
KEYL MN Long Prairie	Rick Dau	Iowa City, IA					345
Totals:	1230	1240	1340	1400	1450	1490	Total
Mike Sanborn Bellflower, CA	14	16	18	21	18	15	102

ABBREVIATIONS AND SPECIAL SYMBOLS USED IN DDXD - North

|| :parallel with/to => :to or into :00: on the hour AC:Adult contemporary AP:Associated Press
 BBD:big band BRN:Business Radio Net C&W:country & western CCR:contemporary Christian
 radio CHR:contemporary hit radio CID:code ID CL:call letter EZL:easy listening EE:English
 FF:French GOS:gospel IRN:Interstate Radio Net LSR:local sunrise LSS:local sunset MLB:
 major league baseball NFL:National Football League NPR:National Public Radio OC:open
 carrier POL:political PSRA:pre-sunrise authority PSSA:post-sunset authority QRM:man-made
 interference QRN:natural interference QTH:location REL:religious ROK:rock 'n' roll RS:regular
 schedule \$:stereo SID:singing ID SRS:sunrise skip SS:Spanish SSB:Star Spangled Banner
 SSS:sunset skip TC:time check TT:test tones UC:urban contemporary UPI:United Press
 International

73, Bill

The 1992-'93 NRC CPC Report

The 1993-'93 NRC CPC season had 11 tests arranged, of which 11 were confirmed "on" by at least one member of the NRC. A total of 160 letters were mailed by the CPC Machine, for a return rate of 6.9%. In 1992-'93, NRC'ers contributed \$85.25. \$77.72 was spent on letters and postage for confirmation letters and in some cases taped ID's. The carry-over to 1993-'94 is \$7.53.

Many of you may wonder how IRCA was able to schedule so many tests. The answer is simple: PARTICIPATION!! Our club managed only 8 contributors out of a membership of 700! I've seen reports in DDXD from many DX'ers who listened for the NRC tests but haven't contributed to the NRC CPC. IRCA was able to schedule

more than twice as many tests because they sent out more than twice as many letters. A small contribution from every DX'er would ensure a large increase in NRC tests for 1993-'94.

So far this season we have had only three contributors: Kermit Geary, Bob Gilfert, and Marcy Scott. The first 88 test requests will be going out in July to target the beginning of the DX season in September. After this mailing, the CPC fund will be close to zero, so let's see some new names on the list of CPC contributors so we can all lose some sleep listening for new DX Tests! Send all contributions and target lists to...

Jeff Tynan
 10359 Severance Drive
 Parker, CO 80134.

DID YOU KNOW that Guglielmo Marconi's famous transoceanic radio tests in the early 1900s received a lot of publicity, but only as a novelty. There were already 14 communication cables under the Atlantic Ocean, and few predicted any commercial value for radio.

DDXD-East NEWS AND VIEWS

Ah, summertime DX: Tom Sanders checks in with some vacation logs while visiting DDXD-East land, Mike Brooker sends along some more "Yoga DX", Chris Cuomo sends some TIS info from a recent trip, and Jim Weber also passes along some trip DX. And thanks for station info to Gary Mitchell and Francis Spindler.

Bob Gilfert says he was reading the July 4 issue of the *Philadelphia Inquirer* and the radio column listed a WYIS on 690. Well Bob, this was the call of 690 before the change to WPHE. I confirmed the WPHE call at 2000 one evening in late July. Apparently none of their listeners (or management) reads the paper to notice! Bob also mentions that he believes his NOS on 1360 in Volume 60, No. 28 was WNNJ-NJ based on a conversation he had with Dave Schmidt.

Have been noticing someone about 0.4 kHz low on 1460 in the evenings since about July 18. Anybody have any ideas who this is? Also, the AAA Scranton-Wilkes Barre Red Barons seem to be building quite a network of stations. Have heard them in the last month on 1440 and 1460 in addition to the usual WARD-1550.

Next deadline, the last of Volume 60, is September 4. Deadlines for Volume 61 will be listed in the next column. Hope everyone has a great convention!

SPECIAL

- 640 WWJZ NJ Mount Holly - A call to the station 7/20 was answered by a real person. She informed me that the station had administrative problems, the staff was still there and should be on the air by the end of the following week. That should be around the end of July. (FS-PA) (Still off 8/9 - db)
- 1020 WKZE CT Sharon - Now runs country music since they fired up their new FM license. (GM-CT)
- 1030 WNTL MD Indian Head - Noted playing CW music prior to 0700 on several mornings. (BG-DC)
- 1120 WUST DC Washington - 8/6 1900+ - *New World Radio* using first six notes from *Going Home* riff from Dvorak's *New World Symphony* as interval signal of sorts. China Radio International has music and variety program on weekdays from 4-5 pm. African show 3-4 Tuesday pm is excellent. (JW-MD)
- 1510 WSSH MA Boston - 7/15 - Went silent this morning, phone disconnected, leaving WNLC in clear during the day, and CJRS an easy catch at night. (BC-NH)
- WSSH MA Boston - 7/26 - Silent station back on the air with usual "Radio Continental" spanish programming. Called station for more info, personnel would only say that there were "business problems". (BC-NH)



- 850 UNID 7/13 2330 - Heard "Canada's only 24 hour...CH..." under CKVL/WNIS. REH-ON and SA-MB, you got any ideas? (BG-DC)
- 1130 UNID 8/6 1952 - "Morningstar Christian Radio" giving weather radar report for the Carolinas. (JW-MD)
- 1230 UNID 7/17 2259 - Only heard "All sports...E(?)I". Hoping for WERI-RI but didn't hear anything further. (DB-DE)

0000 to 0800 ELT

- 560 WFRB MD Frostburg - 7/22 0619 - Poor-fair under WTEM splash. (BG-DC)
- WHYN MA Springfield - 7/9 0632 - Good with "WHYN AM 560" ID into *Skyway Patrol Traffic* report and ad for *Woodworks Unpainted Furniture* in West Hartford, CT. (MB-MA)
- 620 WDNC NC Durham - 7/23 0330 - Poor with weather and call letter ID under WMAL splash. (BG-DC)
- 720 WWII PA Shiremanstown - 7/10 0609 - Poor with announcement "6:09 on W W Two" into local weather. (MB-MA)
- 740 WGSN NY Huntington - 7/5 0622 - Fair with *Citibank* ad, local weather from the Long Island Radio Network". (MB-MA)
- 790 WLKW RI Providence - 7/5 0617 - Fair over WAEB with instrumental EZL version of *Lady Madonna*, local weather from "AM Stereo 79 WLKW". (MB-MA)
- 800 WLAD CT Danbury - 7/3 0605 - Fair-good with "Radio 80 WLAD" ID, sports, into oldies song *Beechwood 4-5789*. (MB-MA)

- 850 WREF** CT Ridgefield Center - 7/9 0608 - Good over WHDH with announcement "WREF news time is 6:08" into local weather for Fairfield County. (MB-MA)
- 900 WMVU** NH Nashua - 7/6 0601 - Very good, creaming WBGG with no apparent sign on announcement, just "Talk Radio 900 WMVU Nashua" jingle, into local news. (MB-MA) (Log shows their sign on as 0500 - db)
- WBRV** NY Boonville - 7/9 0623 - Poor in mess with ad for *Mercer's dairy*, Route 12 in Boonville, into rundown of local birthdays and anniversaries. (MB-MA)
- WBGG** NY Saratoga Springs - 7/6 0600 - Fair-poor with announcement "Sounds of yesterday, WBGG Saratoga Springs, it's 6 o'clock". (MB-MA) (Is this a format change? - db)
- 930 WIZR** NY Johnstown - 7/8 0629 - Fair-good with ad for *Lugano's Factory Outlet Center*, located next to Johnstown YMCA, local news with promo announcement "You heard it first on WIZR". (MB-MA)
- 940 WGFP** MA Webster - 7/9 0615 - Fair with ID as "News Talk 940 WGFP", local news, promo for *Birdwatching by Mail*. (MB-MA)
- WADV** PA Lebanon - 7/9 0557 - Poor over CBM with announcement "...right here on Christian Gospel WADV" into CW-ish sounding gospel tune. (MB-MA)
- 970 WWDJ** NJ Hackensack - 7/6 0608 - Fair-good with "970 DJ" jingle, gospel music, promo for gospel concert featuring group called *Pray For Rain*. (MB-MA)
- 1000 WRNJ** NJ Hackettstown - 7/5 0631 - Fair-poor with ABC news, "WRNJ" ID jingle into local news. (MB-MA)
- 1050 WCMS** VA Norfolk - 7/19 0435 - Poor with CW music under CHUM/WEVD. (BG-DC)
- 1070 WKOK** PA Sunbury - 7/5 0605 - Fair in CBA null with end of CBS news, into a local news report which was mostly a summary of fatal accidents on the Fourth of July weekend. (MB-MA)
- 1100 WHLI** NY Hempstead - 7/6 0530 - Very good with local news, many mentions of Long Island, and big band era tune. (MB-MA)
- 1120 WADN** MA Concord - 7/6 0557 - Fair with sign on announcement mentioning 5000 watt power and slogan "Walden 1120". (MB-MA)
- 1150 WRUN** NY Utica - 7/8 0559 - Fair in mess with ad for *K-Mart*, slogan "AM 1150, Utica's business news station". (MB-MA)
- 1180 WJFF** RI Hope Valley - 7/8 0558 - Fair-poor in WHAM null with "WJFF AM 1180" ID into CW song. (MB-MA)
- 1200 WKOX** MA Framingham - 7/8 0622 - Fair over CFGO with "AM 1200 WKOX Metro weather" local weather. (MB-MA)
- CFGO** ON Ottawa - 7/8 0620 - Fair-good with *McDonald's* ad, promo for Rod Stewart concert at Ottawa Civic Center, "Energy 1200" ID into song by *Jeff Healey*. (MB-MA)
- 1220 WXCT** CT Hamden - 7/8 0613 - Fair-good with SS traffic report mentioning Hamden, Milford, Bridgeport, etc. (MB-MA)
- WKBK** NH Keene - 7/3 0610 - Fair-poor in mess with SS station (presumably WXCT) with local weather "from your friends at WKBK". (MB-MA)
- 1270 WLBR** PA Lebanon - 7/4 0600 - Fair with sign on into ABC news. (MB-MA)
- 1310 WTLB** NY Utica - 7/5 0554 - Good in CIWW null with ID as "1310 WTLB playing the greatest hits of the 50's" into Gene Pitney's *It Hurts to be in Love*. (MB-MA)
- 1550 WCLY** NC Raleigh - 7/19 0338+ - Very poor with GOS music, call letter ID at 0402. Per call to station on 7 watts. (BG-DC)
- 1570 WBUG** NY Amsterdam - 7/4 0612 - Fair-good with ID as "AM 1570, you're listening to the Bug, WBUG" into CW music. (MB-MA) (From this log and your log of WBGG-900, it looks like these two are not simulcasting - db)
- 1580 WPGC** MD Morningside - 7/10 0557 - Poor under WLIM's big band music with "Business Radio 1580 WPGC" ID. (MB-MA)

0800 to 1600 ELT

- 640 WWJZ** NJ Mount Holly - 6-23 0830-0900 - Fair in downtown Baltimore; BBD and "WJZ" slogans. (TS-MD)
- 660 WFAN** NY New York - 6/24 1245-1300 - Fair with a little UNID splash, "Sports Radio 66" with interview with Bob Decker(?), sports editor of the *New York Post*. WOR, WABC, WCBS also heard here in the daytime, 225 miles from NYC. (TS-PA)
- 710 WOR** NY New York - 6/24 1259+ - Fair with call letters at 1259, then news, weather and traffic update from Bill Cordell(?) from 1300-1306. (TS-PA)

- 760 WJR** MI Detroit - 6/24 1215-1300 - Fair and in the clear with best of *Focus* repeat - a 1985 interview with Jimmy Carter - followed by news, traffic and weather with Judy Coy from the WJR weather center. First radio voice from home at 310 miles across the mountains. (TS-PA)
- 770 WABC** NY New York - 6/24 1230-1245 - With Rush Limbaugh, "America's most listened to talk station", fair signal but best of the NYC's heard here. (TS-PA)
- 800 WCHA** PA Chambersburg - 7/15 1540+ - Fair with CW music, call letter ID. (BG-DC)
- 880 WCBS** NY New York - 6/4 1210-1230 - Noticeably weaker than other NYC's with coverage of terrorists bust in NY that AM. (TS-PA)
- 1060 KYW** PA Philadelphia - 6/24 - Checked them off and on from 1200-1300; all news, second best distant signal heard here. Lots better than WOGL. (TS-PA)
- 1090 WBAL** MD Baltimore - 6/24 1225-1235 - With food talk and food/restaurant reviews. Solid, best distant daytime signal here. (TS-PA)
- 1100 WWWE** OH Cleveland - 6/24 1230-1245 - With Rush, weak with lots of WBAL splash. (TS-PA)
- 1170 WWVA** WV Wheeling - 6/24 1258 - Weak in UNID splash, ID, then CW into NBC news at 1300. (TS-PA)
- 1190 WANN** MD Annapolis - 6/24 1302 - Weak, over an UNID with CW and traffic. (TS-PA)
- 1210 WOGL** PA Philadelphia - 6/24 1215-1255 - Fair, not as good as KYW, with Tommy McCarthy lunch time oldies show. All Philadelphia music this day. (TS-PA)
- 1360 WHLP** MD Baltimore - 6/23 0900-1000 - With BBD, call letters only on the hour, "AM 1360" slogans all other times. (TS-PA)
- 1500 WTOP** DC Washington - 6/24 1230 - With bottom of hour break, all news, traffic, solid daytime signal. (TS-PA)

1600 TO 2400 ELT

- 670 WIEZ** PA Lewistown - 6/25 1948 - Poor with oldies, fading fast and completely gone at 1957. First time heard. (BG-DC)
- 740 WMBG** VA Williamsburg - 7/22 2048 - "Poor with "You are listening to WMBG Stuart?...you're golden station". Some other cities were mentioned in the fade. Have been after this one since I moved to DE in '85. (DB-DE)
- 800 WCHA** PA Chambersburg - 7/9 1720+ - Poor under WYRE slop with CW music. First time heard. (BG-DC)
- 900 WLSI** KY Pikeville - 7/24 2009 - ID only popped up at this time in a mess. Heard this one like this once before, in October 1985. (DB-DE)
- 900 CKTS** PQ Sherbrooke - 7/2 2300 - Fair in CHML null with sports talk, //CJAD-800. (MB-MA)
- 920 WMMN** WV Fairmont - 7/22 2244-2255 - Poor-fair with CNN news and local weather report. (BG-DC)
- CKNX** ON Wingham - 7/30 2048+ - Good, alone on frequency. Call letter ID at 2050 then into a CW music countdown show. (BG-DC)
- 930 WLLL** VA Lynchburg - 6/25 2000+ - Good, over WFMD with Lynchburg Red Sox minor league baseball. First time heard. (BG-DC)
- 1150 WMET** MD Gaithersburg - 8/6 1900+ - Running parallel to WPGC-1580 with interview with *Kiplinger's* employee. (JW-MD)
- 1240 WVOS** NY Liberty - 7/17 2229 - ID out of mess then the "WVOS forecast", quickly faded. (DB-DE)
- 1330 WEBO** NY Owego - 7/25 2000 - ID's into news in mess, which included WWRV with English ID into Spanish news. (DB-DE)
- 1350 WRNY** NY Rome - 7/22 2157 - Tentative, very weak under UNID baseball game, but //WADR with *Misty*. (DB-DE)
- 1450 WREL** VA Lexington - 7/25 2012 - Fair with CW music, finally heard "...great country...AM country connection, W Robert E. Lee" at 2026. CW really stands out on this frequency here with regulars WILM-DE and WFPG-NJ both talkers. (DB-DE)
- 1480 WADR** NY Remsen - 8/3 2005 - Poor with central New York weather, promo for upcoming 10K race. Also presumed the one heard 7/22 at 2151 with ads for New York State Parks, and "Westdale, Utica, Camden, you're listening to the Music of Your Life" into *Misty*. (DB-DE)
- 1500 WTOP** DC Washington - 6/22 2130-2230 - With Orioles-Tigers, good but noticeably distant sounding, with a little phasing at night in Baltimore. (TS-MD)
- 1530 WDJZ** CT Bridgeport - 7/16 2041 - Presumed the one with ethnic talk and very, very 50's type oldies. (DB-DE)

- 1540 WREJ VA Richmond - 7/16 2036 - Instrumental music with religious talk between the songs. First time heard since call change. (DB-DE)

OTHER STUFF

- 530 KNJX865 MD Baltimore - 6/23 0915 - Briefly at this time, Maryland Highway Administration Travel Advisory network station with construction updates for metro Baltimore interstates. (TS-MD)
- 530 WNVY508 MD Bowie(?) - 7/30 1100 - Weak with traffic info near intersection of U.S. 50 and U.S. 301, which is under construction. This one was also heard from Falls Church, VA under the National Airport TIS on 7/31. ID sounded like this, but I notice in the log that MD has some WNQT... calls. (DB-MD)
- 530 TIS MD Cumberland - 6/22 1220-1230 - No call letters, short message with evening bridge repair and lane closure updates on I-70 in Cumberland. Small coverage area and very distorted audio. (TS-MD2)
- 530 WNQA290 MD Easton - 7/28 1300 - Heard with traffic information on U.S. 50 construction in Easton area. WNQA289 in Kent Island vicinity had same tape. Heard in St. Michael's, MD also. (DB-MD)
- 530 WXM42 MD Frederick(?) - 6/22 1230-1330 - With weather and river level updates for MD, VA and PA. Gave LSR and LSS times for Frederick. Good from Frederick to Baltimore on I-70, and signs advise motorists to tune to 530. (TS-MD2)
- 530 KEC83 MD Frederick - 7/17 1053 - Relays Baltimore NOAA weather near junction of I-70 and I-270. (CC-MD)
- 530 KNIC273 MD Germantown - 7/17 1112 - Maryland State Highway Advisory Network, I-270 near Germantown. (CC-MD)
- 530 WNFL337 MD Washington County - 7/17 1000 - 3 or more transmitters, each gives info for a different section of the Potomac River. All transmitters along I-70 in Washington County. (CC-MD) (The Log shows a WNSL... call in Baltimore, maybe this one too? - db)
- 530 WPAM593 PA Old Bedford Village - 7/17 0835 - General tourist info with long pauses between announcements. Heard between exits 10 and 12 of I-76. (CC-PA)
- 530 TIS VA Alexandria - This is correct location for Washington National Airport TIS. They have an ongoing project and would like to get reception reports to help them out. Reports should go to: Mark Yedinak, Contract Administrator, Metropolitan Washington Airport Authority, Washington, DC 20001-4901. (BG-DC)
- 530 TIS VA Dulles Airport - There is a buried cable TIS here. (BG-DC) (It runs down the center of the Dulles Access Road, from about 5 miles out or so - db)
- 530 TIS VA Richmond - 7/21 1135 - Greater Richmond visitors info. Mentions of Kathy Mattea concert and premiere of *Bojangles* at the *Barksdale Theater*. No road signs noted for this station. (CC-VA)
- 1610 TIS VA Prince William Forest Park - 7/17 1229 - Info regarding other Washington, DC and Northern Virginia parks and attractions. Near Exit 152 of I-95 in Virginia. (CC-VA)

REPORTERS

- MB-MA Mike Brooker, Lenox, MA: Panasonic RF-B45
- BC-NH Bruce Conti, Nashua, NH: R70, DX400, MWDX-5, (2) 60-ft. wires
- CC-MD,PA, VA Chris Cuomo, on the road from Pittsburgh, PA to Richmond, VA:
- BG-DC Bob Gilfert, Washington, DC:: HQ-129-X, H-510
- GM-CT Gary Mitchell, Fairfield, CT:
- TS-MD Tom Sanders, Baltimore, MD: JVC car radio
- TS-MD2 Tom Sanders, on I-70 between Cumberland and Baltimore, MD: JVC car radio
- TS-PA Tom Sanders, Pennsylvania Welcome Center on I-70, 2 miles north of Hancock, MD: JVC car radio
- FS-NJ Francis M. Spindler, Bethlehem, PA:
- JW-MD Jim Weber, on I-83 near Baltimore, MD: car radio
- DB-DE Dave Braun, Wyoming, DE: R-2000, Palomar Loop, Sony AN-1
- DB-MD Dave Braun, on U.S. 50 through Maryland: Car radio

How to place mail orders ...

Write to NRC Publications - P. O. Box 164 - Mannsville, NY 13661-0164. Enclose check or money order; NY residents, add state and local taxes. Please allow 3-6 weeks for shipping.

International DX Digest

Foreign DX Catches. Times are UTC; for ELT, subtract 5 hrs.

Welcome to the Mark Connelly Show! No other reports except for Mark's this month.

I'm not sure if I'll be able to get to Enfield, and if I do I'll only be able to attend on Saturday, since I work Sundays. But I'll be optimistic and say, "I hope to see you there!"

TRANS-ATLANTIC DX

- 531 ALGERIA Ain Beida, 7/4 0143 - poor to fair with man in Arabic. The Algerian on 549 was in as a het. [MC*MA]
- 585 SPAIN Madrid/unID, 7/4 0139 - Spanish operatic vocal atop possible Arabic (Tunisia or Saudi?) [MC*MA]
- 594 UNID 7/4 0315 - (guesses = Portugal, Morocco) bits of audio, good strength carrier but badly cobbled up by sloop from WEEI/VOCM-590. [MC*MA]
- 603 SPAIN 7/4 0138 - man in Spanish, good to excellent, best reception ever of this one (and in July, no less!) [MC*MA]
- 612 MOROCCO/unID 7/4 0135 - Arabic poor over unID that might have been Athlone, Ireland. [MC*MA]
- 621 CANARY ISLANDS (tentative), 7/4 0015 - stiff het against WZON/WSKQ-620. [MC*MA]
- 639 SPAIN 7/4 0131 - Man in Spanish, clobbering CBN/WWJZ-640. [MC*MA]
- 648 UNID 7/4 0130 - probably Libya but maybe Saudi Arabia or Albania: strong carrier, low audio which sounded Arabic. [MC*MA]
- 666 PORTUGAL (tentative), 7/4 0129 - sounded like soccer match; tough with sloop & T-storm QRN. [MC*MA]
- 684 SPAIN Sevilla, 7/4 0128 - LOUD with man in Spanish; WRKO sloop was partially nulled. [MC*MA]
- 702 MOROCCO (tentative), 7/4 0126 - bits of Arabic-sounding talk; probable Moroccan also present on 711 (as het). [MC*MA]
- 729 SPAIN (tentative), 7/4 0125 - Oviedo (et al.) the likely source of strong het against CKAC; other Spaniards were good at the time. [MC*MA]

Jim Renfrew
61 Wilcox Street
Rochester, NY 14607-3832

- 738 SPAIN Barcelona, 7/4 0125 - LOUD with Spanish music & talk // 747, 774; clear R. Nacional ID. CHCM-740 (NF), on similar bearing, also became loud & dominant at times; sometimes both 738 & 740 were blasting in and the het got brutal. [MC*MA]
- 747 SPAIN Cadiz, 7/4 0122: good with Spanish music & talk // 738, 774. [MC*MA]
- 774 SPAIN 7/4 0121 - EXCELLENT (trashing adjacent WABC-770 & CFDR-780) - Spanish talk by man, then vocal music. [MC*MA]
- 837 AZORES/CANARY ISLANDS (/ SPAIN?), 7/4 0116 - man in Portuguese over/under Spanish station. [MC*MA]
- 846 ITALY Roma, 7/4 0309 - Italian talk poor to fair. This is generally massacred by WHDH - 850 sloop throughout eastern MA; it's a better performer in coastal NJ, DE, MD, VA, etc. [MC*MA]
- 855 SPAIN Murcia, 7/4 0115 - Spanish talk & crowd noises to good peaks despite WHDH sloop. [MC*MA]
- 891 ALGERIA Algiers / PORTUGAL Vilamoura, 7/4 0145 - woman in Arabic at low audio level on huge carrier; man in Portuguese with punchier audio was clearly discernable under. [MC*MA]
- 954 SPAIN Madrid, 7/4 0307 - US rock, Spanish talk. [MC*MA]
- 999 SPAIN Madrid, 7/4 0147 - Spanish female operatic vocal, good; occasionally sliced by Irish / C&W - style fiddling from CKBW-1000. [MC*MA]
- 1017 UNID's, 7/4 0149 - huge carrier, bedlam of mixed audios banging away at KDKA/YVRS-1020. Spain, Germany, & Turkey - and even Morocco & Algeria with low power - are all possible and, judging by the jumble, there were at least 3 participants here. [MC*MA]

RADIO TARMA S.C.R.L.
C/ALFONSO DE ALBUQUERQUE, 10
28014 - MADRID, SPAIN

- 1044 MOROCCO Sebaa-Aioun, 7/4 0150 - likely the one atop the channel with man in French. [MC*MA]
- 1044 SPAIN (tentative), 7/4 0107 - man in Spanish over/under other carrier that was probably Morocco. [MC*MA]
- 1098 SPAIN (/ CANARY ISLANDS?), 7/4 0105 - man in Spanish, good - at times stronger than 1100 (ZDK). [MC*MA]
- 1107 SPAIN 7/4 0103 - news in Spanish by man & woman, good; atop apparent Arabic station (likely Egypt). [MC*MA]
- 1251 LIBYA Tripoli, 7/4 0226 - Arabic music & talk in bad slop. Something else under, maybe Portugal. [MC*MA]
- 1259 AZORES (tentative), 7/4 0227 - just a weak het against semi-local WEZE-1260; Horta had been here, not sure if it's on 1260 now. If it's not them, maybe it's a wayward African. [MC*MA]
- 1359 SPAIN Arganda 7/3 2330: het showing up against WLYN about an hour before local sunset. [MC*MA]
- 1375 ST. PIERRE & MIQUELON, 7/3 0230 - French loud. These guys can even make it in during the middle of day at nearby Nauset Beach on what is believed to be residual skip. [MC*MA]

PAN-AMERICAN DX

- 535 GRENADA St. George's, 7/4 0142 - calypso & reggae music to good peaks despite T-storm QRN. [MC*MA]
- 555 ST. KITTS Basseterre ZIZ, 7/4 0140 - loud with soca mx. [MC*MA]
- 885 MONTserrat Plymouth ZJB, 7/4 0112 - poor to fair with Steely Dan jazz-rock, through WCBS slop. [MC*MA]
- 1100 ANTIGUA St. John's ZDK, 7/4 0045 - blasting in with ad for soca concert, then ad for Antigua hardware store. Some TA -1098 QRM. On car radio, Route 39 near Pleasant Bay Beach; Harwich/Chatham town line. [MC*MA]
- 1150 USA Boston WMEX runs Haitian Creole FF on Saturday nights (as do numerous other Boston AM'ers): so don't get this confused with something exotic. This noted on 4 JUL @ 0100 GMT. Normal format at other times is

soft-rock: the Haitian zouk stuff is a distinct improvement! [MC*MA]

STATION NEWS

- ALGERIA: Radio Algiers International has English at 1900-2200 on 1422 kHz. [BDXC in *Medium Wave News* July/August 1993]
- ARMENIA: 702 Yerevan 150 kW with Mayak 2300-2200, delete 1566; 1314 Yerevan 1000 kW with R. St. Yunost; 1458 Kamo 30 kW with Mayak 0100-0000, delete 1521. [Ostankino via AO/BT in ARC 7/9/93]
- BELARUS: 1125 Miensk 150 kW with R. St. Yunost. [Ostankino via AO/BT in ARC 7/9/93]
- CUBA: Radio 8SF is a new station on 760 kHz with .25 kW. Transmits from Municipio Il Frente en la Provincia de Santiago de Cuba from 2/24/93. Radio Taino, Santa Clara on this new frequency since the beginning of April. The frequency earlier used by Radio Musical. [LARP in ARC 7/9/93]
- GUATEMALA: TGW 640 LV de Guatemala is not inactive (as stated in 93 WRTH. ID is "La Doble V, La Voz de Guatemala". [Björn Malm in ARC 7/9/93]
- FINLAND: 252 Lahti was taken out of service 5/31/93. [BE in ARC 7/9/93]
- GERMANY: 1269 & 1539 DLF were taken over by DW 7/1/93. DLF and DW are being merged into one body. 810, 1539, 1575, 177, and 207 will cease operations 12/31/93, or rather broadcast a new service? [BE & OA in ARC 7/9/93] A new radio station named Deutschlandradio will broadcast on 153 from studios in Cologne and 549 & 756 from Berlin. [Horst Rauch via BE in ARC 7/9/93] 1593 Langenberg has been off for some time when full RDS service was installed on this transmitter, now back on the air again. [R. Nederland Media Network via BE in ARC 7/9/93]



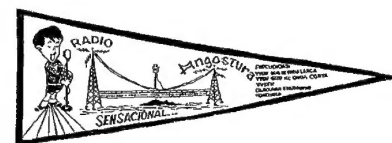
R.F.O. votre Radio



THE VOICE OF IRELAND ON SHORT WAVE

- IRAQ/UNID: Jean Burnell has narrowed down the 1530 unID recently reported. A DXer in Finland reports that an Israeli DXer, D. Levy, has tentatively IDed the station as the "Voice of the Sixteenth District". The QTH is supposedly Kuwait, but it's really Iraq. The Israeli DXer says that the jamming "is probably an American venture". [E-mail correspondence between Jean Burnell and Steve Whitt in *Medium Wave News* July/August 1993]
- KALININGRAD: 171 Bolshakovo now 2500 kW. [Ostankino via AO/BT in ARC 7/9/93]
- KAZAKHSTAN: 243 Almaty and Karagandy each 1000 kW, nowadays with KR2. [Ostankino via AO/BT in ARC 7/9/93]
- KYRGYZSTAN: 1278 Bishkek 150 kW with R. St. Ynost. [Ostankino via AO/BT in ARC 7/9/93]
- MONACO: 702 Riviera Radio is the new name for ex R. Monte Carlo Italian Service. Now broadcasting with only 40 kW, but a power increase is planned. The schedule seems to be 0500-1730. [Horst Rauch via BE in ARC 7/9/93] In English, planning to go to 1200 kW, operating 0630-1930 local. [Valianti and Sennitt in *Medium Wave News* July/August 1993]
- MOROCCO: RTM "A" Channel logged on 540 // 594 kHz. RTM "B" Channel good on 828.0 kHz. Direction finding seems to confirm Oujda transmitter site. Carried English 1000-1130 local time which according to on air announcement appeared to be UTC and not UTC+1. 828 transmitter failed/off air for about 24 hours and replaced by much weaker signal on 827.0 kHz. Programmes mainly French in morning, English midday, Arabic (or Berber) in afternoon. Unfortunately 827 kHz too weak for accurate bearing. Radio Mediterranee Internationale 171 and 612 kHz usually parallel, but unusual split for news noted at 1000 UTC Monday with different French news noted on each transmitter. [Steve Whitt's monitoring from Spain (6/93) in *Medium Wave News* July/August 1993]

- NETHERLANDS: The Ministry of Culture has announced that 747 kHz is definitely to be sold for commercial broadcasting sometime next year. Also 675 kHz tested briefly in June on full 120 kW for a potential German customer instead of usual 40 kW used for bilingual tape loop. [A. Bawden in *Medium Wave News* July/August 1993]
- NEW ZEALAND: Pacific Islands Radio will use the 531 kHz AM frequency reserved by the government for such an operation. The station will cater for the world's largest centralised Pacific Islands population, some 110,000 in the Auckland area. Broadcasts will start towards the end of July, with English format 6 AM - 7 PM daily, then 30 minute information programme covering happenings of interest to the Pacific Islands community. From 7:30 till midnight, programmes for individual island communities will be aired in their respective languages. [Via BC in NZDXT 6/93]
- NORWAY: Since April some Norwegian coastal stations have been transmitting NRK programmes 3 times a day to serve seamen and fishermen in the Barents Sea. This follows the closure of the Tromsø 153 kHz LW transmitter last year. Operating with 1 kW USB and a 2.7 kHz bandwidth are Vardo Radio on 1737 (to change to 1713), Hammerfest Radio 1635 and Svalbard Radio 1731. [DXF via DSWCI with added comment from BC in NZDXT 6/93]
- RUSSIA: 171 Tbilisskaya (Krasnodar kray) 1200 kW; 171 Murmansk 150 kW new station; 234 Samara, St. Petersburg, each 2000 kW; 234 Archangelsk 500 kW; 576 Novosibirsk 1000 kW with Mayak; 585 Belogorsk 1200 kW with Mayak + F5 (ostankino says Khabarovsk, but this must be an error since Khabarovsk is also on



576 - OA)594 Surgut 1000 kW, Krasnoyarsk 150 kW with Mayak; 612 Murmansk from 30 to 150 kW in 3rd quarter of 1993; 675 Novosibirsk 250 kW with R. St. Yunost; 720 Yuzhno-Sakhalinsk 1000 kW with Mayak and FS; 783 Tavrichanka (Vladivostok area) 1000 kW with RO-2, 801 Chita 1200 kW with RO-2; 828 Kyzyl 150 kW with Mayak; 1026 Novosibirsk area 1000 kW with Mayak; 1089 Krasnodar 1200 kW with Mayak and FS, 1476 Tavrichanka (Vladivostok area) 1000 kW with Mayak and FS. [selections from Ostankino via AO/BT in ARC 7/9/93] Locations of Moscow area transmitters, checked on location in May, 1993: Balashikha (east of Moscow): 765, 918, 1305, 1467; Chkalovskaya (in Shchelkovo, northeast of Moscow): 549, 1233, 1359; Elektrostal (east of Moscow): 171, 873; Noginsk (east of Moscow): 198, 846; Oktyabrskoye Polye (in Central Moscow): 702, 738, 792, 963, 1116, 1152, 1206, 1260, 1332, 1440; Taldom (north of Moscow):

261; Zelenogradskaya (in Lesnoy, northeast of Moscow): 1017, 1539. [AO/BT in ARC 7/9/93]

TURKMENISTAN: 1125 Ashgabat 1000 kW with RO-4 and RM-FS. [Ostankino via AO/BT in ARC 7/9/93]

UKRAINE: 549 high-powered transmitters with the Mayak program are Lviv and Kyiv with 150 kW each and Kopani with 500 kW. [Ostankino via AO/BT in ARC 7/9/93]

UNITED KINGDOM: BBC 198 Due to massive criticism in the British press of the plans to drop LW transmissions of R4, the BBC is now reconsidering its plans to allocate the LW frequency to the new all-news channel. A final decision will be taken this year. [BBC Outlook via BE in ARC 7/9/93]

CONTRIBUTORS

[MC*MA] Mark Connelly, Harwich, Cape Cod, MA [mini-DXpedition]; Realistic DX-440, RTL-2 Remotely-Tuned Loop via MWT-3 Regenerative Preselector / Controller.

Mike Hawk, NØOSY

10212 P St.

Omaha, NE 68127-2130

DX on the FM band, from April through September

FM DX

Digest

I've received inquiries from some of you who want to improve your FM DX shack. The best choice for DX'ing is usually a tuner, rather than a receiver. Of course, a tuner will need an amplifier, while a receiver has one built in. Older analog tuners are generally the best buy, since new tuners could cost 3 to 5 times as much as a good old tuner, and won't be much better, if at all. Look for tuners which have a selectable IF bandwidth.

Antennas are just as important as the tuner/receiver. The best antennas are the directional ones, such as yagis and quads. A general rule is that the more elements and the longer the boom of one of these, the more gain it will have. If possible, use antennas made just for the band you want to use. All in one antennas made for VHF, UHF, and FM cost much more for an equal amount of gain. Since these antennas are directional, a rotator will also be needed. The feedline is also very important. 75 ohm coax is best, since it will

have low loss of signals. Yagi antennas, however, have a 300 ohm impedance, so a matching transformer will be needed. Avoid 300 ohm twinlead as a feedline. Not only will it have some loss, it will nullify the directional effects of the antenna. Mount the antenna as high as possible, avoiding obstructions such as hills.

Russ Edmunds - 753 Valley Rd. - Blue Bell, PA 19422-2052

Equipment: Nissan Car radio and whip
local changes:

91.3 WBUD DE Newark, now this call (ex. WXDR)

106.7 WJNN NJ N. Cape May, "Jersey News Now" featuring CNN nx and NJN nx
107.1 WWPL MD Federalburg, "Pleasant 107" and now soft hits

Some DX from my (too brief) vacation in Bermuda:

July 7 Sporadic E
1815 92.3 WPRO RI, "92 Pro FM" w/rock
1820 97.5 WALK NY Patchogue, strong w/lcl ads and ID

Overall, cx have been terrible. Most summers by now I've had several tropo openings to Tidewater, VA, Pittsburgh, Central NY, and at least one to New England. Thus far this year, there's only been a couple of mild enhancements to Baltimore/Washington. YUCK!

Morris Sorensen - 29 Janet Blvd - Scarborough, OH M1R 1H7
DX from Kemptville. Equipment: Panasonic RF-B65 w/whip

7/9 Tropo
2258 96.9 CKOL PQ Verdun-Montreal, FF, lcl ads and ID in FF

7/10 GW
2249 102.9 WNCQ NY Morriston, C&W mx, ID's w/AM on 1410. A relatively new stn

7/11 Tropo
2059 96.5 WVVV NY Malore, country music, SID

7/12 sporadic-E
1957 88.1 WUWF FL Pensacola, "University of West Florida Radio"

1959 88.1 WJSP GA Warm Springs, "Peach State Public Radio"

2047 95.7 WMXZ LA New Orleans, "New Orleans Mix 95"; rock

7/12 Tropo
2157 95.3 WGIX NY Gouveneur, lcl ads, ID "full service radio"

7/13 tropo
2156 97.3 CHGA PQ Maniwaki, rock, FF talk about Quebec

2258 107.9 WHEN NY Syracuse, C&W, legal ID and "Country 108" slogan

7/14 tropo
1050 88.7 CBOF-9 PQ Chapeau, FF interview //CBF 690 KHz

1336 97.7 CHOM PQ Montreal, "Chom" ID and contest promo

1341 107.3 CITE PQ Montreal, soft rock, "Cite" ID in FF

1426 100.7 CBF PQ Montreal, FF talk // CBOX 102.5 Ottawa

Eric Bueneman (NØUIH), 631 Coachway Lane, Hazelwood, MO 63042-1347 (CDT)

Equipment: Realistic STA-90 AM/FM(\$)
receiver, Archer VU-110 antenna

7-5 Sporadic E
1720 105.1 WHQT FL Coral Gables, good w/concert promo, "Hot 105" ID and UC

1728 97.3 WFLC FL Miami, good w/KXOK-97.1 splash w/ads for FL lottery, wx forecast and "Coast 97.3 FM" ID

1739 107.1 WAOA FL Melbourne, good w/CHR, "WA-one-A" ID into "Divine Thing" by The Soup Dragons, over WEAL, my local Part 15er off.

1743 106.3 WAVK FL Marathon, good w/some WKBQ-106.5 splash w/AC/oldies

1749 107.5 WQBA FL Miami, good to fair o/mess w/Salsa music

1751 107.9 WIRK FL W Palm Beach, fair w/KMJM splash with lcl ads and legal ID at 1753, followed by CWM

7-6 Tropo
1905 89.3 WIPA IL Pittsfield, good KCLC-89.1 splash with NPR, "This is WSSU-91.9 FM Springfield and WIPA 89.3 FM Pittsfield, a service of Sangamon State University" into CLA

7-7 Tropo
2311 94.3 WRMS IL Beardstown, good w/AC, "Light 94", //WRMS-790

2313 88.5 WGCA IL Quincy, good with appeals for volunteers to help with sandbagging, CLs into CWM

2328 105.1 WEJT IL Shelbyville, good w/AC/oldies, CLs, morning show promo, wx forecast, ex WSHY and 104.9

The skip into Central and Southern Florida after the holiday, especially with the worst flooding in history affecting many parts of the St. Louis area near the Mississippi, Missouri, Meramec, and the River Des Peres. The St. Louis FMs have done a good job in airing appeals for help during this precarious time, but the best job has been done by KMOX-1120. 73

Eric's second report:

7/25 tropo
0050 98.3 KFMZ MO Columbia, fair between locals on 98.1 and 98.5 w/AOR, "Central MO's Best Rock, 98-3 KFMZ" into local ads

0110 92.7 KLOZ MO Eldon, good w/Z-93 ID into AC

0112 99.7 WMC TN Memphis, good to poor w/AC/CHR "FM 100" IDs (AM on 790)

0117 104.7 KRES MO Moberly, fair w/"KRES - You're with friends" jingle into CWM

7/26 tropo
2210 89.7 WONU IL Kankakee, good o/KYMC w/mention of Chicagoland, CL's into ContChr



- 2241 97.7 WMOI IL Monmouth, good w/sports, mention of WRAM-1330, CLS, wx, into AC
- 2250 93.9 KRNA IA Iowa City, good w/CLS, lcl ads, promo, wx, and AOR
- 2256 107.3 KGRS IA Burlington, good o/WDDD w/wx, lcl ads, legal ID and AC
- 2309 99.5 WZPL IN Greenfield, fair o/WQCY w/ID jx and CHR
- 2312 102.1 WDNL IL Danville, fair o/KJFM w/"Mixing the music the way you like it, we're the new D-102" into AC/CHR
- 2325 89.3 WDLN IL East Moline, food w/"Sounds of Majesty" prgrm from Moody Bible Institute. WMBI-90.1 also in
- 2345 105.3 WYNG IN Evansville, fair w/KZNN w/ID
- 2352 90.9 WILL IL Urbana, good w/CLA between KWMU-90.7 and WIBI-91.1
- 2358 94.5 WLRW IL Champaign, good w/KSHE splash w/lcl ads, "Mix 94.5", legal ID, and AC/CHR
- 7/27 tropo
- 0752 92.7 WQLZ IL Taylorville, good w/lcl news into AOR

Formats

Changes in programming status; reported by listeners

The most major broadcast event here on the east coast is that 50,000 watt WWJZ-640 has, after slightly more than six months, gone silent, because of "financial and administrative problems", according to information sent by Al Holtz. The live assist big band station never appeared in the winter Arbitrons, and had a difficult time competing with WPEN-950 which has regularly appeared in the top ten Philly ratings over the past years with a virtually identical format hosted by former Philly WIBJ and WIP DJ's. Sadly, WWJZ is known to many of you as the station that ran the DX test and then never answered our reception reports!

And in New York City, WZRC-1480 has dumped its satellite fed country music and is brokering all Korean programming, and ID's as "Radio Korea". This is a good move as the station's very directional signal covers Brooklyn and Queens, home to thousands of Koreans.

I have been up in Maine several times in the past few weeks because of the death of my mother. Radio-wise, "WLAM" heard on 1470, 870, and 730 seems to be not doing well. They are down to one voice during AM drive, while last year this conglomerate offered a morning magazine with many announcers. The rest of the day is automated music of your life, A(i) news on the hour, and Red Sox Baseball. Also, longtime (25 years!) WCOU-1240 morning man Hal Alberghini, who woke Central Maine up in the 1950's and 1960's, died at age 80.

From Jerry Starr, WCNN-680, Atlanta, has dumped its Unis CNN Headline News for SEN Sports, WQYK-1010, Tallahassee, has changed from satellite fed country music to syndicated talk and id's as "1010 Talks", and WHB-710, Kansas City is dropping its oldies format in favor of country music and farm news and features, ID'ing as "Missouri's Farm Voice".

Our column comes from first time contributor Al Quiglieri, of Albany, Dave Braun, from Delaware's capital, Dover, The M Street Journal, and your editor on the road between Maine and Connecticut. Here we go...

- 560 KVOK AK Kodiak - News, talk, //sister station KENI-550 (M).
- 560 WBBE PA Philadelphia - Easy listening, "Philadelphia's Wish" (DB).
- 580 CFRA ON Ottawa - Talk (M).

- 0810 102.1 KYYS MO Kansas City, good w/AOR, "Kansas City's best Rock and Roll" slogan
- 0815 87.75 WPSD KY Paducah, god w/NBC's Today Show

Me. Equipment: Kenwood KT-815, 10 el yagi, attenuator

The last three days of July had some decent tropo mainly to KS, MO and AR. yielding 15 new ones. There was a little E-skip to the Carolinas on 8/4. My total now stands at 1080. One other change is that I vertically stagger stacked 2 FM-10 antennas. It's too early to tell the extent of the improvements on reception, but front-to-back ratio seems to be better, as it should w/phase cancellation techniques like stagger stacking. 73

0804 99.9 WOOZ IL Harrisburg, good o/KFAV with CWM, "New Country Z-100", last heard as WEBQ-FM

WGAR-FM* 99.5

5005 Rockside Road/Sle. 530
Cleveland, Ohio 44131-6808

Tony Fitzherbert

356 Jackman Avenue

Fairfield, CT 06430-1728

- 590 WROW NY Albany
- 600 WCHT MI Escanaba
- 640 KGVW MT Belgrade
- 680 WCBM MD Baltimore
- 730 WBBJ AL Madison
- 730 CKLG BC Vancouver
- 730 WDOS NY Oneonta
- 790 WPTQ GA Brunswick
- 830 KNCO CA Grass Valley
- 850 WYDE AL Birmingham
- 850 KKKO AR Benton
- 870 WLAM ME Gorham

- 900 WSSR DE Georgetown
- 900 WCLZ ME Brunswick
- 910 WNEZ CT Farmington
- 910 WRVH VA Richmond

- 930 WYUS DE Milford
- 930 KROE WY Sheridan
- 940 WINZ FL Miami
- 940 WFAW WI Fort Atkinson
- 970 WYNZ ME Portland

- 1010 WTGC PA Lewisburg
- 1020 WKZE CT Sharon
- 1130 WCLW NC Eden
- 1150 WMET MD Gaithersburg
- 1150 WIMA OH Lima
- 1220 WQSA FL Sarasota
- 1230 WBFX IN Terre Haute
- 1230 WIRO OH Ironton
- 1240 WQVA NY Geneva
- 1240 WRTA PA Altoona
- 1250 WARE MA Ware
- 1280 WECY DE Seaford
- 1310 KLIX ID Twin Falls
- 1310 WDPN OH Alliance
- 1320 WICO MD Salisbury
- 1340 WSBM AL Florence
- 1340 WGAW MA Gardner
- 1360 WZPC AL Jasper
- 1380 WCQL NH Portsmouth
- 1380 WPLB MI Greenville
- 1400 WNEX GA Macon
- 1400 WLLH MA Lowell and Lawrence
- 1420 KRSR OR Coos Bay
- 1440 WLPZ ME Westbrook

- 1440 WMAX MI Bay City
- 1450 KOBQ CA Yuba City
- 1450 WNBK MA Newburyport
- 1470 WBYB MD Salisbury
- 1470 WSRO MA Middleboro
- 1480 WKND CT Windsor
- 1490 WHAV MA Haverhill
- 1520 WDSL NC Moaksville
- 1550 WSER MD Elkton
- 1560 WSEZ IN Paoli
- 1590 KGIN CA Victorville
- 1600 WARU IL Peru

- Soft AC // FM (M).
- Talk (M).
- Contemporary Christian//FM (M).
- All news and talk (DB).
- Unis CNN Headline News (M).
- Hot AC, some talk (M).
- Country (M).
- Southern Gospel, contemporary Christian (M).
- Talk (M).
- News, talk (M).
- Unis Standards (M).
- //1470, Lewiston and WJTO-730, Bath, with MYL, all id's as WLAM except at the top of the hour when legal ID's are given (TF).
- Easy listening (DB).
- Progressive rock//FM (TF).
- Unis CNN Headline News "910-CNN" (AQ).
- All syndicated talk "910-WRVA", owned by WRVA-1140 (M).
- Talk (DB).
- SMN Hot AC (M).
- SEN Sports at night (M).
- Talk, oldies (M).
- Very old adult standards, live assist, even older music than WLAM et. al. (TF).
- Country music //WWBE (M).
- "All American Country" (AQ).
- AC "Classic" (M).
- Back to//WPGC-1580 all business news (M).
- News, talk (M).
- Standards and talk (M).
- Rock//WZZQ (M).
- Country gold (M).
- JSN Oldies (M).
- Talk (M).
- Oldies (AQ).
- News, talk (DB).
- News, talk (M).
- Soft AC (M).
- News, information (DB).
- SMN Urban AC (M).
- //adult standards with WSRO-1470 (TF).
- ASN Sports (M).
- SEN Sports "Cool Sports" (TF).
- Unis standards (M).
- Talk (M).
- Adult standards "Memories and More" (TF).
- Religion (M).
- Dumps business news and home shopping for SEN Sports (TF).
- SEN Sports (M).
- Spanish, Hindi (M).
- Adult contemporary (TF).
- Urban contemporary, gospel (DB).
- Old adult standards//WGAW, Gardner (TF).
- Urban contemporary "Power 1480 AM" (TF).
- Oldies (TF).
- Country, oldies, bluegrass (M).
- Adult contemporary (DB).
- IBN Talk (M).
- SMN standards (M).
- Oldies//FM (M).



All for now. Send your format changesin to YOUR Formats column. And a big thank you to our contributors for this issue. Hope to see many of you in Enfield!

73's

A DXers TECHNICAL GUIDE

Now in its 2nd edition, this 120 page book answers questions on receiver and antenna theory (how to improve their performance), how audio filters and loop antennas can improve DX (and hints on their construction), how to build a beverage and phasing unit; and much more. Only \$5.50 for NRC/IRCA members, \$6.50 for non-members (overseas airmail add \$2.50). Order your copy today from: IRCA Bookstore, 9705 Mary Ave NW, Seattle WA 98117

A Coupler and Upgrades for the Quantum Loop ... by Gerry Thomas

A couple of people who have purchased Quantum Loops have requested a means of coupling the antenna to radios without external antenna terminals. I've finally got around to putting together a coupler and, since it should work with other amplified loops, thought I'd take a few minutes to pass on the details of its construction. Following the coupler construction section are a few mods to the Quantum Loop that might prove beneficial to some Quantum Loop owners.

QUANTUM LOOP COUPLER

Conceptually, this device is very simple and its total parts cost is around \$10.00 to \$12.00 (less if it's assembled out of parts from your junk box). Basically, it consists of a coil wound on a ferrite rod housed in a plastic cabinet. A signal is fed to one lead of the coil and routed to ground through a 51 Ohm, 1/4W resistor (to provide a load for the amp). Mounting hardware, an input jack, and a current reversing switch round out the principal components. The coupler is connected to the output of the Quantum Loop via a 3-foot patch cord (RG-174U) suitably terminated with connectors. When placed near the cabinet of a portable radio (and parallel to its internal ferrite rod antenna), the signal being radiated by the coupler is picked up by the radio's antenna and coupling occurs. One of the nice things about a physically discrete connection (like the coupler) is that tuning sharpness (or Q) and gain can be controlled simply by varying the distance between the coupler and the radio...but more on that later.

COMPONENTS

- Ferrite rod - I use a 3-5/8" L by 5/16" D rod (you don't want a monster rod or it may pick up signals on its own).
- Plastic cabinet - I chose a black 4" L x 1" W x 1" D cabinet.
- Coil - The amount of wire doesn't matter too much once you get beyond a couple of feet; I use three feet of 28 gauge magnet wire close-wound.
- Reversing switch - This is a standard miniature DPDT toggle.
- Jack - I chose RCA because of its small size; anything that will fit will do. You could hard-

wire the connection but I like the flexibility of a jack.

- Resistor - A 1/4W, 51 Ohm carbon resistor is fine.
- Mounting method - You could glue the rod to the bottom of the cabinet but I decided to use nylon ties and mounting platforms.
- Patch cord - RG-174U is sufficiently flexible and is shielded (though not perfectly - 76%); a PL-259 plug (and reducer) was used in order to match the output connector of the Quantum Loop.

CONSTRUCTION

Construction is pretty self-evident with nothing being particularly critical (other than the wiring of the current reversing switch). A look at the preceding illustration should provide all the important information but here is an outline of the steps in the construction of the coupler...

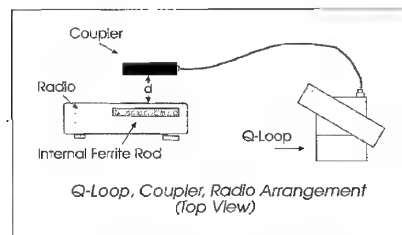
1. Wind the coil on the rod (or on a coil form) being sure to leave leads long enough to reach the reversing switch. Tape or Q-dope in place.
2. Solder the jumpers on the DPDT switch (see illustration).
3. Drill two holes in one end of your chosen cabinet and mount the switch and jack.
4. Mount rod/coil assembly in cabinet.
5. Hook up coil wires and 51 Ohm resistor to switch, and wires to RCA jack.
6. Assemble the patch cord with connectors.
7. Cover cabinet and attach patch cord.
8. Connect to loop.

OPERATION

Position the Quantum Loop at a sufficient distance from the portable radio to prevent oscillation and place the coupler near the radio (it can be on the table top; it doesn't have to be in contact with the radio) so that the coupler is parallel to the radio's internal ferrite rod (see illustration on next page).

The distance ("d" in the illustration) between the coupler and the radio will determine the gain and Q of the system (as will the angle between the coupler and radio). In general, decreasing "d" will result in an increase in gain and a lowering of Q; conversely, increasing "d" decreases gain but increases Q. This latter condition deserves some qualification -- there is a point of critical coupling where both gain and Q are optimal (but not necessarily maximal) for a given listening situation. Playing with the "d" variable will result in optimal performance for a given set of conditions.

If you notice a dip or notch as you tune the exact frequency of the desired station, flip the current reversing switch. The notch indicates that the coil in the coupler and the coil of the radio's antenna are wound in opposite directions;



the reversing switch will correct the situation and a peak should result. Theoretically, if the signal being provided by the coupler is the same as the signal being picked up by the radio's internal loop, judicious tweaking of the Quantum Loop's tuning knob (to create an in-phase condition) then a flip of the reversing switch to the "reverse" position should result in a notch of infinite depth. In real terms, I haven't found it possible to decrease the gain of the Quantum sufficiently to match my radios' internal rod's signal so, while a notch is sometimes detectable, it hasn't been particularly useful.

At moderately close coupling ratios, the output of the Quantum Loop is so high that the signal being radiated by the coupler largely swamps the radio's internal antenna thereby negating its signal capturing ability. In other words, by using the coupler with a loop like the Quantum, you need only rotate the loop's head to obtain nulls on most stations. On stronger stations, the radio's antenna/circuitry will pick up enough signal so that rotating the radio is necessary for deepest nulls.

If you have neither the time nor inclination to build one of these couplers, I'll put one together for Quantum Loop owners for \$17 (+ \$3 shipping). If you haven't purchased a Quantum Loop, the price is \$27 (+ \$3 shipping).

QUANTUM LOOP UPGRADES Q IMPROVEMENT

In Mark Connelly's excellent review of the Quantum Loop last season, he suggested adding inductance in the coil legs to reduce the possibility of SW feedthrough under certain situations. This modification works and all Quantum Loops I've constructed since then have included this SW filter. However, there is a minor drawback... By introducing the inductance, DC resistance is also introduced thereby lowering the Q (and, ultimately, the gain) of the coil assembly. The DC resistance of the inductors is only 1.2 Ohms, which appears to be minimal, but is significant when compared to the .1 Ohm of a direct conductor. Therefore, all Quantum Loops

I've sold recently have had the inductors included in the circuit but I've also by-passed them with defeatable jumpers. The thinking being that if SW feedthrough is a problem, the owner could simply snip the jumpers to reactivate the filter.

Following are the details for performing this mod on existing Quantum Loops. Note that Q will be increased to the point where the steeper, deeper, and narrower nose and skirts of the passband may cut the sidebands on stations on the lower portion of the band. While this degrades fidelity, as a DXer, I prefer the greater control sharp Q provides.

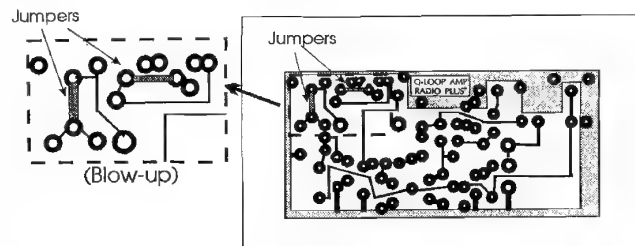
1. Remove loop head and set aside.
2. Remove four (4) screws securing the amplifier base.
3. Locate printed circuit board.
4. Study following figure and solder the two (2) short jumpers to the points illustrated in the figure.
5. Replace amplifier base and install screws.

(Note: If you have one of the earlier, hand-wired, versions of the Quantum Loop that has had the inductors installed after the fact, just solder a jumper across each of the inductors visible on the bottom of the board.)

LOOP HEAD PIVOT BEARING

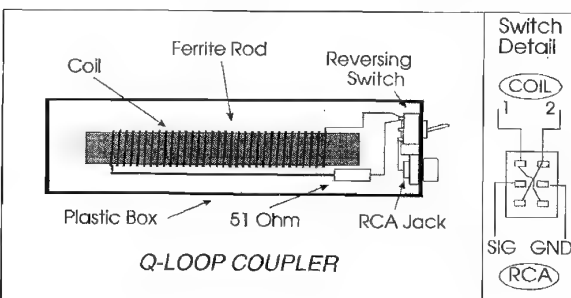
One owner of a Quantum Loop apparently over tightened the cap screws holding the loop head to the chrome pedestal. The result was slightly stripped threads which the cap screws didn't adequately "bite." If you have this problem, here are two possible fixes...

A. Remove the outer, smaller nylon washer bearing from the pivot assembly. This will allow the cap screw to protrude farther into the thread and get a better grip. OR... B. Drop me a line and I will send you a full-length sex bolt assembly (yeah, that's what they're called, hi) that goes all the way through the pivot point. The drawback of this solution is that the shielded wires that run from the loop head to the pivot plug will sometimes gather when the loop head is tilted.



All of the preceding upgrades will be gladly performed by me if you'd rather. There is no charge but I'd appreciate return shipping. Thanks ...

Gerry Thomas, 3635 Chastain Way, Pensacola, FL 32504



Geomagnetic Summary

High "A" values indicate possible auroral conditions

Phil Bytheway
9705 Mary NW
Seattle, WA 98117-2334

Geomagnetic Summary April 26 1993 through June 18 1993

Date	FLUX	A	K	SA	GEO	OTHER
4/26	123	4	1	low	quiet	-
27	118	3	0	low	quiet	-
28	114	3	1	low	quiet	-
29	107	10	4	low	quiet-unsettled	-
4/30	106	11	2	very low	quiet-unsettled	-
5/ 1	103	6	1	low	quiet	-
2	103	5	1	very low	quiet	-
3	107	10	1	low	quiet-unsettled	-
4	111	5	0	low	quiet	-
5	118	6	2	low	quiet	-
6	120	10	3	low	quiet-unsettled	-
7	131	14	4	moderate	unsettled-mis	-
8	129	37	5	low	active-mis	mis 0000
9	129	28	5	very low	unsettled-mis	mis
10	134	46	1	low	active-quiet	mis
11	132	3	3	low	quiet	-
12	126	13	2	low	quiet-unsettled	-
13	120	4	2	low	quiet	-
14	112	15	1	moderate	quiet-active	-
15	104	8	5	very low	quiet-unsettled	Geomagnetic activity
16	99	13	4	low	quiet-unsettled	maf major flare
17	96	16	0	very low	quiet-active	mas major storm
18	91	4	1	very low	quiet	mif minor flare
19	91	10	2	low	quiet-unsettled	mis minor storm
20	91	11	0	very low	quiet-unsettled	pca polar cap absorption
21	91	2	1	very low	quiet	SA solar activity
22	92	1	1	very low	quiet	spe satellite proton event
23	95	1	0	low	quiet	swa strat warm alert
24	98	2	0	low	quiet	ss severe storm
25	100	0	0	low	quiet	-
26	108	2	2	low	quiet	-
27	120	14e	3	moderate	quiet-active	-
28	126	18	2e	low	unsettled-active	-
29	129	9	2	moderate	quiet-unsettled	-
30	140	3	2	low	quiet	-
5/31	138	5	2	low	quiet	-
6/ 1	138	4	0	low	quiet	-
2	139	5	3	low	quiet	-
3	136	15	4	moderate	quiet-active	-
4	130	37	6	moderate	unsettled-mas	mis 0200
5	134	37	3	low	unsettled-mis	mis
6	128	15	1	low	unsettled	-
7	112	16	3	high	unsettled-active	maf 1425
8	112	10	2	low	quiet-unsettled	-
9	115	6	1	moderate	quiet	-
10	113	19	2	moderate	quiet-mis	-
11	102	9	2	low	quiet	-
12	93	14	4	low	quiet-active	-
13	87	12	0	very low	quiet-active	-
14	84	11	2	very low	quiet	-
15	82	7	0	very low	quiet	-
16	82	2	0	very low	quiet	-
17	83	3	1	very low	quiet	-
6/18	85	2	0	low	quiet	-



International DX Achievements

Paul Swearingen
2840 SE Illinois Avenue
Topeka, KS 66605-1427
International DX totals listed periodically in different categories

Year Started	DX'er	Location	Last Update	Total Veried	Ctries	Frqn	OC	OC	NA	SA	Eur	Af	Asia
1952	McIntosh, Eric	NZ	1965	686	63	635	KMTH	253	301	2	45	4	81
1977	Vernon, Brian	YU	1981	314	39	232	2WG	106	7	1	63		55
?	Dellit, Sam	Australia	1978	362	37	218	WXLE	80	109		5	1	23
?	Millar, Roy	WA	1967	1705	65	429	7AD	79	260	25	16		48
1934	Gustafson, Hilding	IL	1984	862	112	316	2BE	61	68	36	114	23	14
1933	Geary, Kermit	PA	1993	6190	107	988	2CK	61	512	243	147	23	2
1946	Holbrook, Hank	MA	1982	2528	101	704	5PI	49	270	93	147	26	2
1938	Anderson, Roger	VA/NY/PA	1993	1448	105	514	5MU	48	227	78	128	28	5
1947	Luton, Relie	NC	1973	1049	23	142	7NT	33	102	4			
1963	Scrimgeour, Gray	CA/ON	1971	526	47	440	AFRS Kwaj	31	354	10	18	1	26
?	Callarman, John	?	1970	740	50	138	2AP	20	72	20	17	3	6
?	Morss, Stan	MA	1975	3922	82	424	2WL	14	218	62	104	14	2
1958	Taylor, Pete	CA	1993	375	26	5858	3YW	13	22	4			19
1941	Kruse, Len	IA	1971	4080	15	77	1YZ	13	61	3			
1958	Dangerfield, Ben	PA	1981	422	118	323	2BL	8	84	44	148	31	8
1946	Moore, Ray	MA	1967	245	104	245	2GF	8	95	52	59	24	7
1933	Cooper, Ernest	NY-MA	1980	4142	79	760	KHEC	7	528	131	88	6	
1958	Wesolowski, Ernie	NE	1977	1898	24	168	4YA	7	153	6		1	1
1969	Karchevski, Bob	MA/CA	1975	204	24	141	Tarawa	6	112				
1958	Merriman, Alan	VA	1974	1460	89	314	KZOO	3	171	42	82	12	4
1954	Starr, Jerry	OH	1974	1209	51	194	VSZ1	3	134	34	20	3	
1931	Steele, Sid	IL	1982	3001	35	286	2BL	3	256	10	2		1
1964	Reynolds, Bruce	?	1977	1103	28	121	2NA	2	111	6	2		
1931	Wheeler, Frank	PA	1982	1732	25	78	1YA	2	68	7	1		
1964	Whattmough, Dave	ON	1964	930	11	820	KORL	2	815	1	2		
?	Sampson, John	NJ	1965	445	54	72	KORL	1	23	6	38	3	1
?	Heinen, Wayne	NY	1981	882	18	116	KORL	1	109	2	5		
?	Erickson, Don	CA	1982	442	6	9	KIMO	1	8				
1960	Rugg, Andy	QC	1986	1512	62	183			79	48	51	5	
?	Falconer, Jeff	ON	1976		49	1175			44				
1976	Renfrew, Jim	NY	1984	928	38	51			44	7			
1963	Straus, Elliot	NJ	1993	890	33	41			5	13			
1965	Long, John	CT	1968	101	29								
1962	Musco, Ron	CT	1985	1121	28	36			29		6	1	
?	Fela, Joseph	NJ	1965	738	24	35			19	4	11	1	
1975	Swearingen, Paul	KS	1992	667	21	82			30	16			
1974	Knitter, Mike	WI	1983	936	17	53			45	8			
1962	Kerfoot, Tim	ON	1975	342	13	259			255	2	2		
1964	Sorensen, Morris	ON/MB	1975	537	13	385			375	1	9		
1977	Wolfish, Niel	ON	1977	397	11	20			14	4	2		
1962	Edmunds, R. J.	NJ	1969	226	10	56			53	1			
1968	Bytheway, Phil	WA	1982	457	9	20							
1960	Lynch, Don	MA	1980		9	157							
1976	Higgins, Earl	IL	1981	60	7	5			4		1		
1973	Mount, Paul	OH	1978	225	6	25			22	2			
?	Casamassina, Anthony	NY	1966	124	3	13			12	1			
1975	Bartek, Daniel, Jr.	NE	1976	23	2								

Thanks to those who sent updates for this edition of IDXA, including the person who showed a total of 86 veries, 6 countries, and 5 foreign ... and whose envelope I pitched before I realized I can't read his signature. Sorry! If you haven't sent in an update or a listing for this column, please do so, even if it's just to confirm that your totals haven't changed or to add the year you started DX'ing and keeping veries. Total veries includes all veries, taped or paper, domestic and foreign; NA includes all Central America and Caribbean countries, but not U. S. A. or Canada.

I'm going to continue to list all NRC members, so if your name is not listed above, why not join us? The next IDXA, to run in October, will feature SA and total veries.

Super-MWDX-5 Phasing Unit ... by Mark Connelly - WA1ION

The Super-MWDX-5 is a phasing unit with enhanced capabilities over the MWDX-5 described in my article of OCT 1991 (available as NRC / IRCA reprints). Added features include transformers for use as part of a noise-reducing antenna system, additional controls to give better nulling ability, and a jack for a "spare antenna" usable for broadband monitoring and quick parallel checks / scanning during DXpeditions. A metal box is used for superior shielding and mechanical ruggedness. A new hardware scheme was developed to "float" the tuning capacitors from chassis ground. This method should be of value to builders of balanced loops that also require a tuning capacitor isolated from chassis ground.

The Super-MWDX-5 may be used for two-wire phasing or loop-vs.-wire phasing. In either case, nulls may be obtained that differ in directivity from those achievable with a standard loop; the result is potentially different DX from the loggings acquired with a loop alone.

Nulling midwest "clears" to log Europeans at an East Coast US/Canada QTH is definitely a job better suited to phasing than looping. The MWDX-5 article gives useful background information on phasing as well as a list of other articles on the subject. The Super-MWDX-5 uses the BBA-C1 broadband amplifier which has good strong-signal handling performance; the BBA-B used on MWDX-4 style phasers could be substituted in rural areas for reduced battery drain.

Table 1: Super-MWDX-5 Controls and Input / Output Connectors

Controls location	designation	operational description
left side	S3	Ground Mode switch
top	C1	Line 1 tuning capacitor
top	C2	Line 2 tuning capacitor
top	R1	Line 1 level pot
top	R2	Line 2 level pot
top	R3	Null vernier (Q-balance) pot
top	S1	Bandswitch
top	S2	Function switch
top	S4	Input Coupling (length) switch
top	S5	Output switch
top	S6	Wire / Loop switch (Line 2 input)

Input / Output Connectors location	designation	operational description	connector type
left side	J1	Line 1 wire input	banana jack
left side	J2	Line 2 wire input	banana jack
left side	J3	earth ground input 1	banana jack
left side	J4	earth ground input 2	banana jack
left side	J8	Loop input	BNC jack
right side	J5	RF output	BNC jack
right side	J6	B+ in	phono jack
right side	J7	9V battery holder	Keystone 1290
right side	J9	spare antenna input	BNC jack

Organization of article
Table 1: Controls and Input / Output Connectors

Table 2: S1 Bandswitch Settings Chart
text: Operating the Super-MWDX-5
two-wire phasing
loop vs. wire phasing
output amplification
New features - notes on noise reducing antenna systems, spare antenna input

Building the Super-MWDX-5

Figure 1: Super-MWDX-5 input section schematic

Figure 2: Super-MWDX-5 bandswitch / combining section schematic

Figure 3: Super-MWDX-5 output section schematic

Figure 4: (M1) BBA-C1 broadband amplifier card schematic

Figure 5: (M1) BBA-C1 broadband amplifier card assembly

Figure 6: Super-MWDX-5 switch details

Figure 7: C1, C2 mounting details

Table 3: hole-drilling list

Table 4: "upper level" parts list

Table 5: (A1) BBA-C1 broadband amplifier card parts list

Table 6: small hardware parts list

Table 7: wiring / component connections

Table 8: control orientation conventions

Table 2: S1 Bandswitch Settings Chart
Ranges are usually a bit greater than those shown. These ballpark values are for 50-m. / 164-ft. wires and the S4 coupling switch set to the "Normal" position. Other positions and wires may alter ranges somewhat.

The Super-MWDX-5 family of phasing units has frequency coverage characteristics as noted in the following table:

* MODEL: standard Super-MWDX-5 * (LWBC: 130-285; MW: 430-1800)

S1 Pos.	S1 Knob Pointer	Min. Freq. kHz	Max. Freq. kHz	"Main" L L#	Max. Tank Inductor uH	["Tap" L] Values	Mouser Part #
#	"o'clock"	kHz	kHz	L#	uH		
1	9:30	130	180	L1,L13	4700	434-1120-473K	
[	"	"	"	L7,L19	1000	43LR103]
2	10:30	180	285	L2,L14	2200	434-1120-223K	
[	"	"	"	L8,L20	470	43LR474]
3	11:30	430	630	L3,L15	470	43LR474	
[	"	"	"	L9,L21	100	43LR104]
4	12:30	630	880	L4,L16	220	43LR224	
[	"	"	"	L10,L22	47	43LR475]
5	1:30	880	1260	L5,L17	100	43LR104	
[	"	"	"	L11,L23	22	43LR225]
6	2:30	1260	1800	L6,L18	47	43LR475	
[	"	"	"	L12,L24	10	43LR105]

* MODEL: Super-MWDX-5A * (LW & MW: 145-2700)

S1 Pos.	S1 Knob Pointer	Min. Freq. kHz	Max. Freq. kHz	"Main" L L#	Max. Tank Inductor uH	["Tap" L] Values	Mouser Part #
#	"o'clock"	kHz	kHz	L#	uH		
1	9:30	145	230	L1,L13	3900	434-1120-393K	
[	"	"	"	L7,L19	820	43LR824]
2	10:30	230	375	L2,L14	1500	434-1120-153K	
[	"	"	"	L8,L20	330	43LR334]
3	11:30	375	620	L3,L15	560	43LR564	
[	"	"	"	L9,L21	120	43LR124]
4	12:30	620	1050	L4,L16	220	43LR224	
[	"	"	"	L10,L22	47	43LR475]
5	1:30	1050	1600	L5,L17	82	43LR825	
[	"	"	"	L11,L23	18	43LR185]
6	2:30	1600	2700	L6,L18	33	43LR335	
[	"	"	"	L12,L24	6.8	43LR686]

* MODEL: Super-MWDX-5B * (extended LW: 90-880)

S1 Pos.	S1 Knob Pointer	Min. Freq. kHz	Max. Freq. kHz	"Main" L L#	Max. Tank Inductor uH	["Tap" L] Values	Mouser Part #
#	"o'clock"	kHz	kHz	L#	uH		
1	9:30	90	130	L1,L13	10000	434-1120-104K	
[	"	"	"	L7,L19	2200	434-1120-223K]
2	10:30	130	180	L2,L14	4700	434-1120-473K	
[	"	"	"	L8,L20	1000	43LR103]
3	11:30	180	285	L3,L15	2200	434-1120-223K	
[	"	"	"	L9,L21	470	43LR474]
4	12:30	285	430	L4,L16	1000	43LR103	
[	"	"	"	L10,L22	220	43LR224]
5	1:30	430	630	L5,L17	470	43LR474	
[	"	"	"	L11,L23	100	43LR104]
6	2:30	630	880	L6,L18	220	43LR224	
[	"	"	"	L12,L24	47	43LR475]

* MODEL: Super-MWDX-5C * (MW, tropical: 375-6500)

S1 Pos.	S1 Knob Pointer	Min. Freq. kHz	Max. Freq. kHz	"Main" L L#	Max. Tank Inductor uH	["Tap" L] Values	Mouser Part #
#	"o'clock"	kHz	kHz	L#	uH		
1	9:30	375	620	L1,L13	560	43LR564	
[	"	"	"	L7,L19	120	43LR124]
2	10:30	620	1050	L2,L14	220	43LR224	
[	"	"	"	L8,L20	47	43LR475]
3	11:30	1050	1600	L3,L15	82	43LR825	
[	"	"	"	L9,L21	18	43LR185]
4	12:30	1600	2700	L4,L16	33	43LR335	
[	"	"	"	L10,L22	6.8	43LR686]
5	1:30	2700	4000	L5,L17	12	43LR125	
[	"	"	"	L11,L23	2.7	43LR276]
6	2:30	4000	6500	L6,L18	4.7	43LR476	
[	"	"	"	L12,L24	1	43LR106]

Table 2 (continued)

* MODEL: Super-MWDX-5D * (extended tropical, SWBC: 1260-12500)									
S1 Pos.	S1 Knob Pointer "o'clock"	Min. Freq. kHz	Max. Freq. kHz	"Main" L L#	["Tap" L] Tank Inductor uH	Values Mouser Part #			
1	9:30	1260	1800	L1,L13	47	43LR475			
2	10:30	1800	2800	L7,L19	10	43LR105			1
3	11:30	2800	4000	L2,L14	22	43LR225			
4	12:30	4000	6500	L8,L20	4.7	43LR476			
5	1:30	6500	8800	L3,L15	10	43LR105			
6	2:30	8800	12500	L9,L21	2.2	43LR226			
				L4,L16	4.7	43LR476			
				L10,L22	1	43LR106			1
				L5,L17	2.2	43LR226			
				L11,L23	0.47	43LR477			1
				L6,L18	1	43LR106			
				L12,L24	0.22	43LR227			1

* MODEL: Super-MWDX-5E * (reduced coupling efficiency) (90-8800)
 Note: For this configuration, S1 is a 2-pole, 12-position switch. The inductors on the S1A section (L1 through L12) are switched across the C1 stator to R1 arm path. The arm of R1 is tied to a 68 ohm resistor to GND rather than to an S1C "tap L" section. The inductors on the S1B section (L13 through L24) are switched across the C2 stator to S6 "Wire" path. The S6 "Wire" pin is tied to a 68 ohm resistor to GND rather than to an S1D "tap L" section. Output levels with Super-MWDX-5E are reduced from those achievable with models utilizing the S1C / S1D "tap L" architecture.

S1 Pos.	S1 Knob Pointer "o'clock"	Min. Freq. kHz	Max. Freq. kHz	Tank Inductor L#	Values uH	Mouser Part #			
1	6:00	90	130	L1,L13	10000	434-1120-104K			
2	7:00	130	180	L2,L14	4700	434-1120-473K			
3	8:00	180	285	L3,L15	2200	434-1120-223K			
4	9:00	285	430	L4,L16	1000	43LR103			
5	10:00	430	630	L5,L17	470	43LR474			
6	11:00	630	880	L6,L18	220	43LR224			
7	12:00	880	1260	L7,L19	100	43LR104			
8	1:00	1260	1800	L8,L20	47	43LR475			
9	2:00	1800	2800	L9,L21	22	43LR225			
10	3:00	2800	4000	L10,L22	10	43LR105			
11	4:00	4000	6500	L11,L23	4.7	43LR476			
12	5:00	6500	8800	L12,L24	2.2	43LR226			

Operating the Super-MWDX-5

Figures 1 through 3 are the schematics of the Super-MWDX-5.

Please refer to them during the discussion of phasing procedure.

Use wires at least 15m./50 ft. in length. There should be some angular or distance separation between the wires for optimum results in two-wire applications. See Tables 2 and 8 for physical positioning of switches.

Super-MWDX-5

Two Wire Phasing Procedure

1.0 Phasing Steps (2-wire)

The best method of nulling when the two antennas are delivering comparable signal levels (e. g. within 6 dB) differs from that to be used when there is a considerable strength difference (e. g. one of the Beverages or longwires is already throwing a partial null on the dominant; or, one of the wires is considerably longer than the other and, therefore, consistently provides more signal).

Unlike previous phasers, the Super-MWDX-5 provides both Q-skewing (R3) and non-Q-skewing (R1, R2) level adjustment methods to handle a wide variety of nulling situations.

Certain nulls may be achieved best by a blend of both methods; as operator experience with the unit increases, nulling judgment improves and getting to the desired DX becomes a considerably faster procedure.

Nulling procedures sound complicated at first but are quickly executed once learned. The user should practice during non-skip daylight conditions on "graveyard" and regional channels having discernable subdominants to get familiar with operation of the controls before attempting night-time nulls of unsteady signals.

As with a loop, solid nulls of skip stations above 1 MHz in the 50 to 500 mile range are difficult because of the rapid changes in vertical (and sometimes horizontal) arrival angles inherent when dealing with high-angle skip. Such nulls are better when using phased Beverages than when using a loop or phased

shorter wires.

1.1 INITIALIZATION OF SWITCHES

Set frequency range switch S1 to the correct range for the frequency of operation (see Table 2). Set S3 to Common (unless using an antenna system with noise-reduction transformers). Set Input Coupling switch S4 to Normal (or to a different position, depending on experimentation that leads to having determined the best position for a given antenna system). Set S5 Output switch to Phaser / Unamplified. Set S6 to Wire. S2 will be set subsequently.

1.2 INITIALIZATION OF POTENTIOMETERS

Set level pots R1 (Line 1) and R2 (Line 2) to fully counterclockwise (minimum attenuation). R3 settings will be made subsequently.

1.3 CONNECTIONS

Connect longwire #1 to J1 and connect longwire #2 to J2. If coaxial cable is used (as in a noise-reduction transformers scheme), BNC or SO-239 to dual-banana-plugs adapters should be used to connect Line 1 to J1 (center) / J3 (shield) and Line 2 to J2 (center) to J4 (shield). Otherwise, an available ground may be connected to J3 and J4. Connect phaser's output (J5), via coaxial cable, to the input of the receiver to be used, or to a tunable preamp. between phaser and receiver. Connect a 9V battery to the J7 battery holder and plug P1 into J6, or connect the plug of an 8V to 16V DC power source to J6.

1.4 PEAK LINE 1

(S2 on Line 1 / R3 at center) OR (S2 on Null-a / R3 fully CCW). Tune Line 1 by peaking desired-frequency signal strength with C1. At this time, leave C1 at its peaked-signal position. NOTE THE SIGNAL STRENGTH (observe S-meter, if available, or note audible level).

[At this time, other positions of Input Coupling switch S4 may be tried to see if greater signal transfer is possible. Re-adjustment of C1, and possibly S1, may be needed to re-establish a peaked condition. In any event, the peak should have reasonable Q (be well defined) and C1 should not be set too close to fully CW or fully CCW. In most cases, S4 on Normal will provide good enough signal levels and reasonably sharp tuning not overly affected by differences in length between the two wires to be phased.]

1.5 PEAK LINE 2

(S2 on Line 2 / R3 at center) OR (S2 on Null-a / R3 fully CW). Tune Line 2 by peaking the desired-frequency signal strength with C2. At this time, leave C2 at its peaked-signal position. NOTE THE SIGNAL STRENGTH (observe S-meter, if available, or note audible level).

1.6 DETERMINE POTENTIOMETER TO ADJUST

If the dominant-station signal level noted when peaking Line 1 with C1 (step 1.4) is comparable (within 6 dB on meter, or not audibly different) to the strength noted when peaking Line 2 with C2 (step 1.5): Adjust R3 to search for a null while trying the Null-a and Null-b positions of S2. If a distinct null is found, leave S2 and R3 at the best null-producing settings and proceed to step 1.7a. If a null is not found: Switch S3 between Line 1 and Line 2 while adjusting R3 to make the observed signals equal on the S-meter (or not audibly different). R3 should, at this point, be close to its center position. Then, proceed to step 1.7a.

If the dominant-station signal level noted when peaking Line 1 with C1 (step 1.4) is noticeably greater than the strength noted when peaking Line 2 with C2 (step 1.5): Set R3 to its center position. Adjust R1 to search for a null while trying the Null-a and Null-b positions of S2. If a distinct null is found, leave S2 and R1 at the best null-producing settings and proceed to step 1.7b. If a null is not found: Switch S3 between Line 1 and Line 2 while adjusting R1 to make the observed signals equal on the S-meter (or not audibly different). Then, proceed to step 1.7b.

If the dominant-station signal level noted when peaking Line 1 with C1 (step 1.4) is noticeably lower than the strength noted when peaking Line 2 with C2 (step 1.5): Set R3 to its center position. Adjust R2 to search for a null while trying the Null-a and Null-b positions of S2. If a distinct null is found, leave S2 and R2 at the best null-producing settings and proceed to step 1.7c. If a null is not found: Switch S3 between Line 1 and Line 2 while adjusting R2 to make the observed signals equal on the S-meter (or not audibly different). Then, proceed to step 1.7c.

1.7 CAPACITOR / POTENTIOMETER INTERACTIVE ADJUSTMENTS FOR NULL

Perform procedure 1.7a, 1.7b, or 1.7c as determined by step 1.6.

1.7a (Prior adjustment: R3)

If R3 is at center position, or CCW from center: Set S2 to Null-a. Adjust C1 to improve the null.

If the null isn't well-defined or C1 is near the CW or CCW end of its range: Set S2 to Null-b and re-adjust C1 for the null. Interactively adjust R3 and C1 to get the best available null with these controls.

If R3 is CW from center: Set S2 to Null-a. Adjust C2 to improve the null. If the null isn't well-defined or C2 is near the CW or CCW end of its range: Set S2 to Null-b and re-adjust C2 for the null. Interactively adjust R3 and C2 to get the best available null with these controls.

1.7b (Prior adjustment: R1 - e. g. R1 is not fully CCW)

Set S2 to Null-a. Adjust C2 to improve the null. If the null isn't well-defined or C2 is near the CW or CCW end of its range: Set S2 to Null-b and re-adjust C2 for the null. Interactively adjust R1 and C2 to get the best available null with these controls.

1.7c (Prior adjustment: R2 - e. g. R2 is not fully CCW)

Set S2 to Null-a. Adjust C1 to improve the null. If the null isn't well-defined or C1 is near the CW or CCW end of its range: Set S2 to Null-b and re-adjust C1 for the null. Interactively adjust R2 and C1 to get the best available null with these controls.

1.8 FINAL TOUCH UP TO GET MAXIMUM NULL

Do the final null "touch-up" with an interactive adjustment of C1, C2, and R3.

Super-MWDX-5 Loop vs. Wire Phasing Procedure

2.0 Phasing Steps (Loop vs. Wire)

NOTES: The loop should be equipped with a Q-spoiling resistor of approximately 22K across its parallel-tuned LC tank. A 50K potentiometer (initially set to center) might be substituted; it can provide an added control over nulling if desired. The pot or fixed resistor should be easily removable (switch or clips) to facilitate stand-alone (high-Q) loop usage.

A loop used in a phasing application is usually oriented for best directivity toward desired DX signals, whether or not that position reduces the dominant.

Sometimes orienting the loop for MAXIMUM dominant signal pick-up, or for dominant level equal to that from the wire, can actually help nulling.

2.1 INITIALIZATION OF SWITCHES

Set frequency-range switch S1 to the correct range for the frequency of operation (see Table 2). Set S2 Function switch to Line 1; set S3 to Common (unless using an antenna system with noise-reduction transformers). Set Input Coupling switch S4 to Normal (or to a different position, depending on experimentation that leads to having determined the best position for the wire being used). Set S5 Output switch to Phaser / Unamplified, and set S6 to Loop.

2.2 INITIALIZATION OF POTENTIOMETERS

Set level pots R1 (Line 1) and R2 (Line 2) to fully counterclockwise (minimum attenuation). Set Null Vernier (Q-Balance) pot R3 to center position.

2.3 CONNECTIONS

Connect longwire #1 to J1 and connect the loop (coax.) to J8. If coaxial cable is used on Line 1, a BNC or SO-239 to dual-banana-

plugs adapter should be used to connect to J1 (center) / J3 (shield). Earth ground may be connected to J4. Connect the phaser's output (J5), via coaxial cable, to the input of the receiver to be used, or to a tunable preamp. between phaser and receiver. Connect a 9V battery to the J7 battery holder and plug P1 into J6, or connect the plug of an 8V to 15V DC power source to J6. Connect the loop to its power source.

2.4 PEAK LINE 1

Tune Line 1 by peaking desired-frequency signal strength with C1. At this time, leave C1 at its peaked-signal position.

[At this time, other positions of Input Coupling switch S4 maybe tried to see if greater signal transfer is possible. Re-adjustment of C1, and possibly S1, may be needed to re-establish a peaked condition. In any event, the peak should have reasonable Q (be well defined) and C1 should not be set too close to fully CW or fully CCW. In most cases, S4 on Normal will provide good enough signal levels and reasonably sharp tuning.]

2.5 PEAK LINE 2

Set S2 Function switch to Line 2. Tune Line 2 by peaking the desired-frequency signal strength with the loop's tuning capacitor. Leave this capacitor at its peaked-signal position.

2.6 DETERMINE LINE HAVING STRONGER DOMINANT-SIGNAL LEVEL

Note the difference in the strength of the dominant signal to be nulled as you switch S2 between Line 1 and Line 2.

2.7 INITIATE NULL

The potentiometer that will be adjusted initially will be that corresponding to the antenna line having the stronger peaked level (from step 2.6): adjust R1 if Line 1 is stronger; R2 if Line 2 is stronger. Set S2 to Null-a. Adjust the pot determined above (R1 or R2) to search for a null of the dominant. Try this again with S2 set to Null-b. Leave S2 on the position yielding the better-defined null.

If a well-defined null was not obtained; set the pot of the stronger line such that signal level of the dominant is the same when S2 is switched from Line 1 to Line 2. Set S2 to the position (Null-a or Null-b) having the lower level of dominant signal / greater evidence of subdominant signals. Adjust the tuning capacitor (C1 or the loop tuning capacitor) of the line OPPOSITE of that whose pot was adjusted. Adjust this capacitor for best nulling of the dominant. If the null is not easily obtained or tends to occur at the end of the capacitor's adjustment range; set S2 to the other null position (e. g. Null-b if you had started on Null-a). In rare cases, better results may be obtained by re-peaking the capacitor (e. g. go back to S2 on Line 1 if C1 was just adjusted and re-adjust C1 for a peak), and

then adjusting the capacitor of the SAME line as the pot that was offset from its fully-counterclockwise position. Again, this adjustment should be tried with S2 on Null-a and on Null-b to see which position results in the better null and in the adjusted tuning capacitor being closer to the center of its mechanical range at null.

2.8 COMPLETE THE NULL

Once as much nulling as possible has been obtained by alternately adjusting the pot (R1 or R2) and tuning capacitor (the loop tuning capacitor or C1) determined by Step 2.7; do the final null "touch-up" with an interactive adjustment of C1, the loop tuning capacitor, and R3. Slight physical re-positioning of the loop may also help to finalize the null. If a 50K pot (initially set to center, 25K) had been installed across the loop coil (instead of the approximately-22K fixed resistor), it may also be touched up for null completion.

3.0 Output Amplification

3.1 If more gain is required after nulling, set S5 to Phaser / Amplified. Occasionally a slight touch-up of the pots and tuning capacitors might be required to get the best null. This generally occurs only with portable receivers that leak some pickup from their internal ferrite rod or whip antennas.

NEW FEATURES:

Besides the enhanced controllability of nulls mentioned in the above nulling procedures, Super-MWDX-5 affords two other critical improvements over its predecessors: Compatibility with noise-reducing antenna systems

If Input Coupling switch S4 is set to the Noise-Reduction mode and Ground Mode switch S3 is set to the Float position, the phasing unit may be interfaced correctly with coaxial inputs from low noise antenna systems consisting of a wire antenna and a "field site" earth ground fed to the primary of a (field site) step-down transformer in the 4:1 to 12:1 range; either a Mini-Circuits T9-1-X65 or Nick Hall-Patch's home brew version consisting of an Amidon FT50-43 core with 35 turns primary / 11 turns secondary will work well. The lower impedance output of this field-site transformer is paralleled with 270 to 330 ohms; one secondary lead goes to the shield of the coaxial cable going to the operator's "shack" and the other secondary lead goes to the center conductor of this coaxial cable through a small series resistor in the 5 to 12 ohm range. The resistors form a low-loss matching pad to reduce the degree of mismatch. Excessive mismatch can compromise the shielding effectiveness of the coaxial cable. One such low-noise set-up can be phased against a loop or, even better, against a second low-noise antenna system

with different directional properties. In any event, the "shack end" of a Line 1 low-noise coaxial feed is connected to J1 (center) and J3 (shield) of the phasing unit; similarly, if such a coaxial feedline is to be used for Line 2, it should be connected to J2 (center) and J4 (shield).

For further discussion of noise-reduction schemes, the reader is advised to consult my articles "Another Look at Noise-Reducing Antenna Systems" (6 JUL 1992), "Bevermatcher" (15 JAN 1991), the Nick Hall-Patch / John Bryant article "Impedance Matching a Beverage Antenna to a Receiver" in *Proceedings 1988*, and the 1991 noise-reducing inverted-L articles by Dallas Lankford and Denzil Wraight.

The reader should be advised that the noise being reduced is LOCAL electrical noise of the type caused by TV sweep oscillator harmonics, light dimmer buzz, and the like. These antenna systems cannot, singly, reduce static from lightning bolts. Such noise CAN be nulled by phasing two antennas if it is coming from far enough away as to approximate a point source not having great incoming-angle variation over time (it is then treated as a "dominant signal" as if it were a broadcast station interfering with desired DX).

"Spare antenna" input

DXpeditioning in Newfoundland and elsewhere has taught me the value of having a broadband antenna available with the flip of a switch without having to disconnect the phased set-up. This antenna is characteristically used for rapid bandscanning and searching for parallel frequencies. The beauty of having it go through the phasing unit is that you could have nulled out a noise or a "pest" station on medium-wave and be monitoring a rare African when the idea of checking a 60-meter parallel comes to mind. With one flip of Super-MWDX-5's Output Switch S5 to one of the spare antenna positions ("Spare / Unamplified" or "Spare / Amplified"), you are now on a third antenna, fed into J9. This could be a long wire, a Beverage, or even an untuned active whip such as the MFJ-1024. The 60-meter parallel is confirmed and then you can flip back to the phaser signal without upsetting the null whatsoever.

In home set-ups, some DXers might like to feed a loop into J9 so they can switch back and forth between a two-phased-wires-created-null and one created by the loop. Entirely different stations might be logged when the same dominant station has been nulled by the two different methods. It sounds weird, but it can happen.

A few receivers such as the Drake R8 have their own antenna switches that let you pick

one of two sources. But many don't. Sony ICF2010's and Realistic DX-440's are very popular for DXpeditions. Neither has such an antenna switch. The added features make the Super-MWDX-5 a bit more complex than the standard MWDX-5 and much more complex than the Mini-MWDX-5. A well-equipped DX

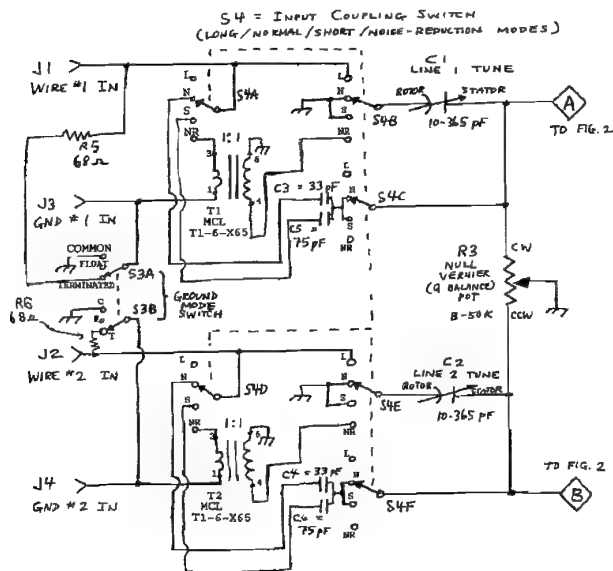
shack should have a very simple phaser such as Mini-MWDX-5 as well as a full-features version such as Super-MWDX-5. The simple unit will get nulls much of the time, but the more complex (and therefore, more flexible) unit can get more DX for the operator who has the patience to master its use.

Building the Super-MWDX-5 Phasing Unit

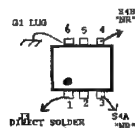
The documentation (schematics, assembly drawings, parts lists, hole lists, etc.) serves as the starting point. The following procedure should serve as an outline for the builder.

1. Gather all necessary parts (see parts lists to follow). Prepare work area with appropriate tools.
2. Drill out chassis box, in accordance with Table 3.
3. Assemble the A1 (BBA-C1) Broadband Amplifier Card subassembly, per Figures 4 & 5 and Table 5.
4. Mount the A1 (BBA-C1) circuit card at the hole locations noted in Table 3.
5. Install jacks, pots, and switches. Solder inductors onto S1 per Figure 2 and Table 2.
6. Install wiring and other components per Figures 1, 2, 3, 6, 7 and Tables 1-4, 6, 7, 8. Install knobs on C1, C2, R1, R2, R3, S1, S2, S4, and S5 per Tables 2, 4, and 8. Place labels near controls and jacks.
7. Follow Two-Wire Phasing Procedure or Loop-vs.-Wire Phasing Procedure steps given in this article.

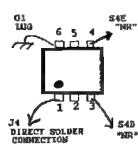
FIGURE 1: SUPER-MWDX-5 (INPUT SECTION)



TOP VIEW, T1



TOP VIEW, T2



TOP VIEW, T3

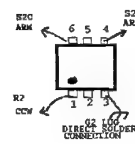


FIGURE 2: SUPER-MWDX-5 (COMBINING SECTION BANDSWITCH)

S1 = BANDSWITCH
FOR VALUES, SEE TABLE 2

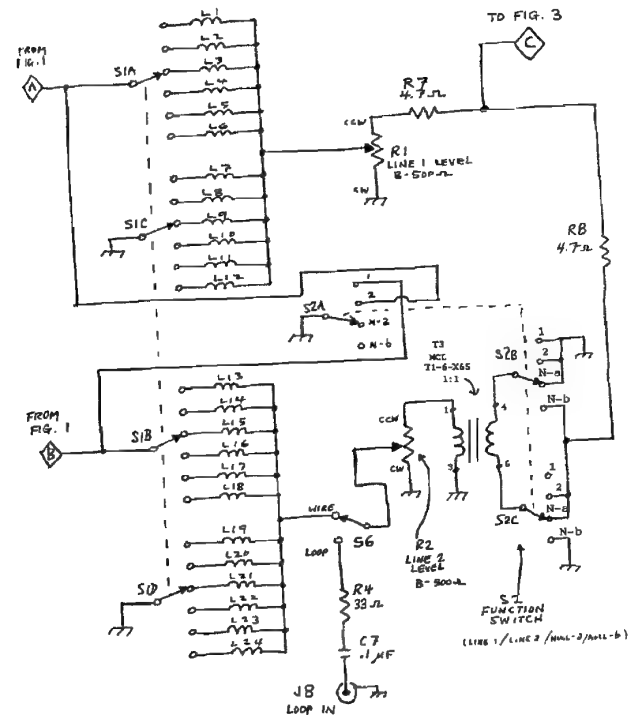
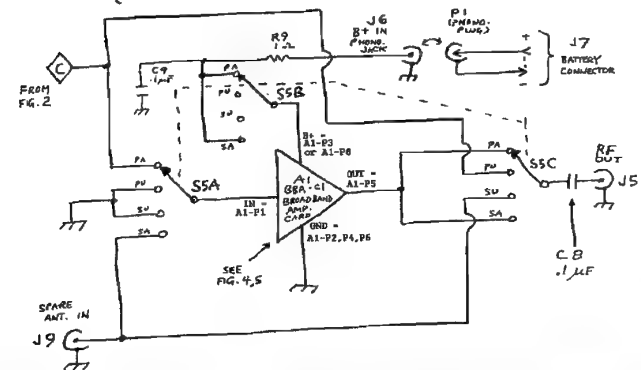


FIGURE 3: SUPER-MWDX-5 (OUTPUT SECTION)
(S5 = OUTPUT SWITCH: PHASE UNAMPLIFIED/SPARE ANT. UNAMPLIFIED/SPARE ANT. AMPLIFIED)

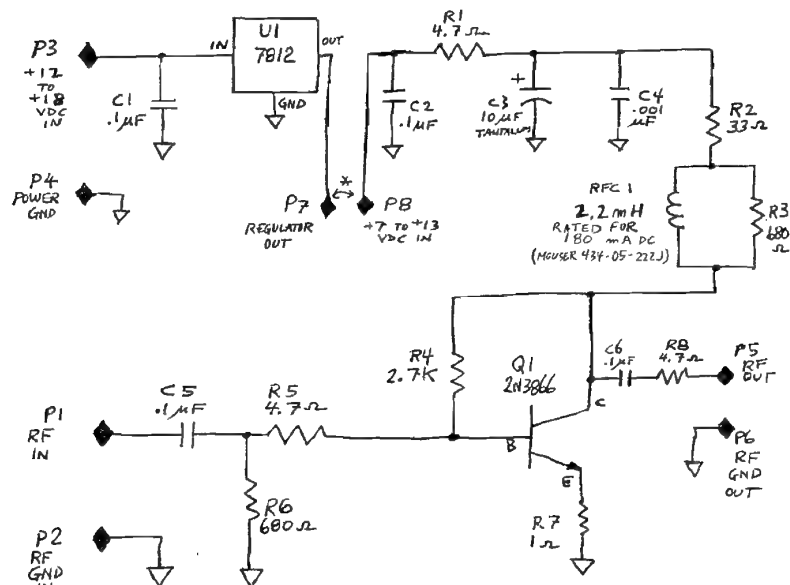


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FIGURE 4: BBA-C1 IMPROVED BROADBAND AMPLIFIER CARD - SCHEMATIC
(WALTON DR LABS - 17 MAR 1992)



NOTES

1 - CIRCUIT CARD GROUND

* = JUMPER FOR REGULATED OPERATION

FOR ASSEMBLY, SEE FIGURE 5.

FOR PARTS LIST, SEE TABLE 5.

THIS IS SUBASSEMBLY "A1" OF MWDX-5 & SUPER-MWDX-5.

Table 3: Super-MWDX-5 hole-drilling list

X = Horizontal distance, in inches, from the vertical centerline (VCL) on the side observed. Negative values of X are left of VCL, positive values of X are right of VCL.

Y = Vertical distance, in inches, from the bottom horizontal edge of the side observed.

D = Hole diameter in inches.

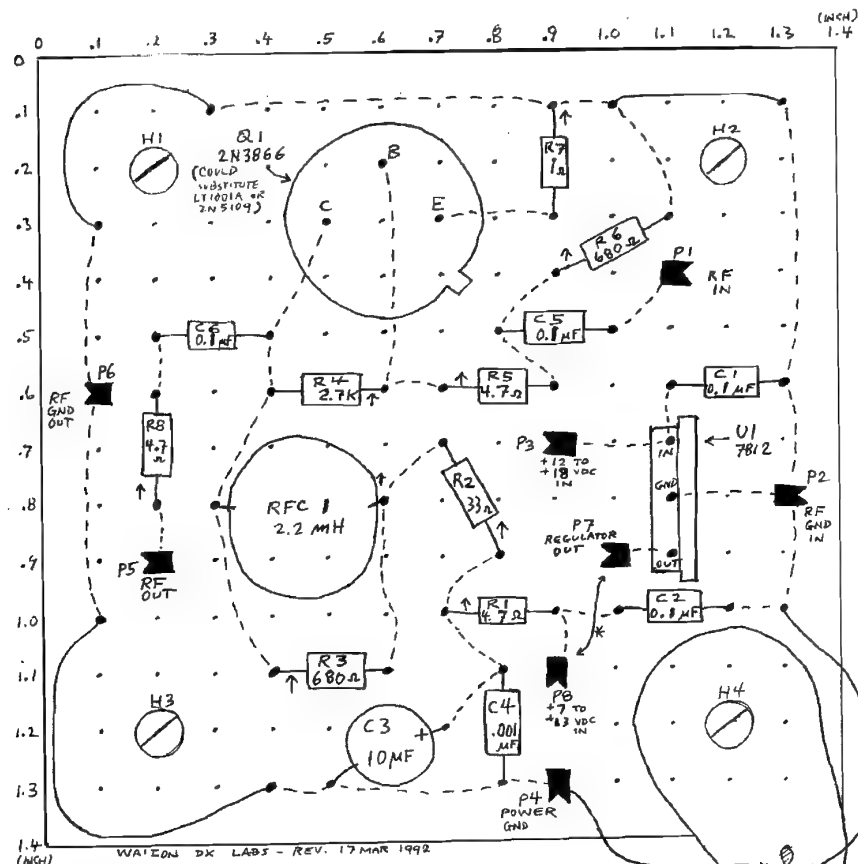
Hole loci are first marked on the box with a scribe and are then drilled with a .125" bit. Subsequently, as required, the holes are enlarged to the proper size by using progressively larger bits up to that corresponding to the final desired diameter.

Chassis Box = Mouser # 537-TF-782; 7" X 5" X 3"

L E F T S I D E

Hole #	Comp. Desig.	Description	X	Y	D
1	J1	Line 1 wire -red banana jack	-1.0625	0.5	0.3125
2	J3	GND1 In - black banana jack	-0.3125	0.5	0.3125
3	J4	GND2 In - black banana jack	0.3125	0.5	0.3125
4	J2	Line 2 wire -red banana jack	1.0625	0.5	0.3125
5	S3	Ground Mode switch - tab	-0.25	1.25	0.125
6	S3	Ground Mode switch - shaft	0.0	1.25	0.25
7	G1	grounding H/W - internal lug	0.75	1.25	0.125
8	J8	Loop in - BNC jack	1.875	1.125	0.375

FIGURE 5 : HMA-CI IMPROVED BROADBAND AMPLIFIER CARD - ASSEMBLY



NOTES :

NOTES:
FOR SCHEMATIC, SEE FIGURE 4.

FOR PARTS LIST, SEE TABLE 5.

FOR PARTS LIST, SEE TABLE 3.
 ▲ = LONG-LEAD SIDE OF VERTICALLY-MOUNTED COMPONENT.

↑ = LONG-LEAD SIDE OF VERTICALLY-MOUNTED
— = BUS WIRE ON COMPONENT SIDE OF BOARD

— = BUSS WIRE ON COMPONENT SIDE OF BOARD
— = BUSS WIRE ON SOLDER SIDE OF BOARD

1. "HEAT SHIELD" TERMINAL PIN

OPEN 3IPC = "FLEA CLIP TERMINAL" REGULATED OPERATION

* = JUMPER INSTALLED FOR REGULATED OPERATION

Table 3 (continued)

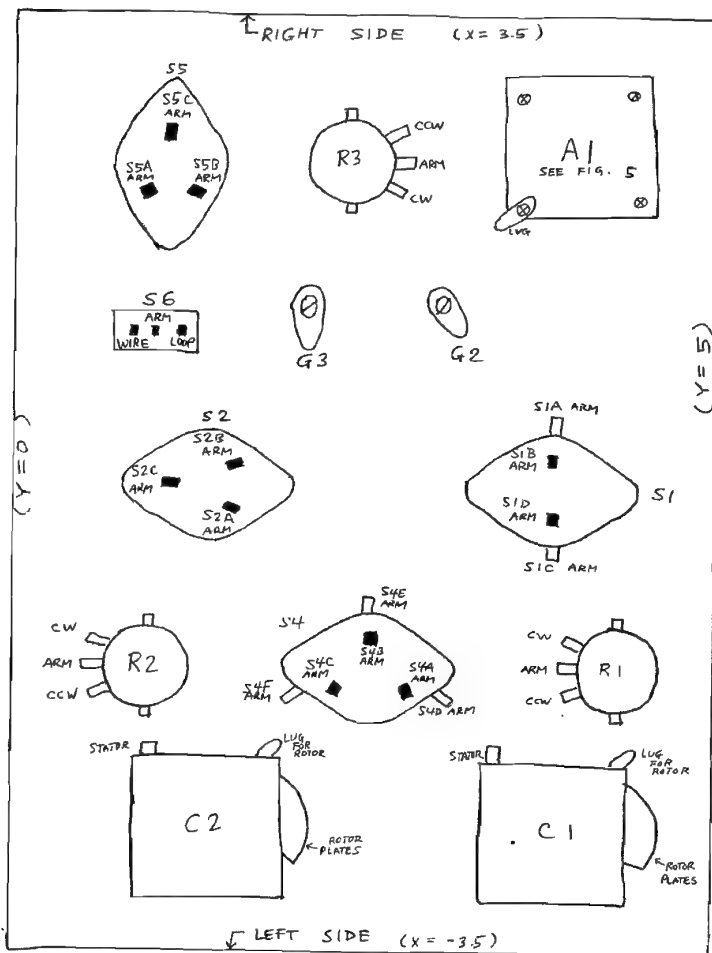
TOP SIDE

Mounting holes on C1 & C2 must be tapped to 6-32 thread.

Hole #	Comp. Desig.	Description	X	Y	D
1	C1	Line 1 Tuning Cap. -Mtg./H/W 1	-2.963	3.875	0.144
2	C1	Line 1 Tuning Cap. - shaft	-2.5	3.625	0.5
3	C1	Line 1 Tuning Cap. -Mtg./H/W 2	-2.037	3.875	0.144
4	C1	Line 1 Tuning Cap. -Mtg./H/W 3	-2.5	3.0	0.144
5	C2	Line 2 Tuning Cap. -Mtg./H/W 1	-2.963	1.625	0.144
6	C2	Line 2 Tuning Cap. - shaft	-2.5	1.375	0.5
7	C2	Line 2 Tuning Cap. -Mtg./H/W 2	-2.037	1.625	0.144
8	C2	Line 2 Tuning Cap. -Mtg./H/W 3	-2.5	0.75	0.144
9	R1	Line 1 level pot - tab	-1.125	4.125	0.144
10	R1	Line 1 level pot - shaft	-0.8125	4.125	0.3125
11	S4	Input Coupling switch-shaft	-0.625	2.375	0.375
12	S4	Input Coupling switch - tab	-0.125	2.375	0.144
13	R2	Line 2 level pot - tab	-1.125	0.875	0.144

14	R2	Line 2 level pot - shaft	-0.8125	0.875	0.3125
15	S1	Bandswitch - tab	0.0	3.75	0.144
16	S1	Bandswitch - shaft	0.5	3.75	0.375
17	S2	Function switch - tab	0.0	1.25	0.144
18	S2	Function switch - shaft	0.5	1.25	0.375
19	S6	Wire/Loop switch - shaft	1.5	0.625	0.25
20	S6	Wire/Loop switch - tab	1.5	0.375	0.125
21	G2	grounding H/W - internal lug	1.875	2.375	0.125
22	G3	grounding H/W - internal lug	1.875	1.5	0.125
23	A1	Broadband Amp. Card-H/W 2	2.0	4.5	0.125
24	A1	Broadband Amp. Card-H/W 1	3.0	4.5	0.125
25	A1	Broadband Amp. Card-H/W 4	2.0	3.5	0.125
26	A1	Broadband Amp. Card-H/W 3	3.0	3.5	0.125
27	R3	Q-balance pot - shaft	2.8125	2.25	0.3125
28	R3	Q-balance pot - tab	3.125	2.25	0.144
29	S5	Output switch - shaft	2.625	0.875	0.375
30	S5	Output switch - tab	2.625	0.375	0.144

FIGURE 6: SUPER-MWDX-5 SWITCH DETAILS
(SKETCH OF INTERIOR VIEW OF COMPONENTS, BOTTOM COVER REMOVED)
NOTE: POSITIONS, SIZES APPROXIMATE -- NOT TO SCALE
RIGHT, LEFT SIDE CONNECTORS/CONTROLS NOT SHOWN



RIGHT SIDE

Hole #	Comp. Denig.	Description	X	Y	D
1	J1	battery holder - H/W 1	-1.875	0.75	0.125
2	J1	battery holder - H/W 2	-1.0	0.75	0.125
3	J6	MT input - phono jack	0.0	1.25	0.25
4	J5	RF out - BNC jack	0.0	0.5	0.375
5	J9	spare ant. in - BNC jack	1.25	1.25	0.375

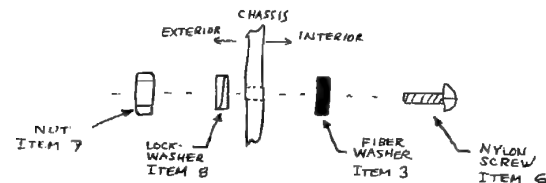
FIGURE 7

C1, C2 MOUNTING DETAILS

ITEM NUMBERS ARE ACCORDING TO TABLES 6B & 6C.

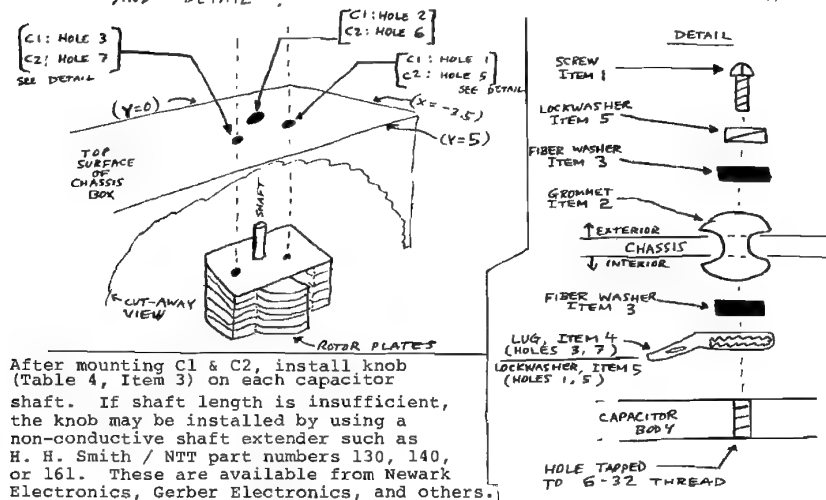
HOLE NUMBERS ARE ACCORDING TO TABLE 3.

INSTALL THE FOLLOWING AT HOLE 4 AND AT HOLE 8:



CUT THE NYLON SCREW TO BE FLUSH WITH THE NUT AFTER ASSEMBLY.

INSTALL C1 AND C2 ACCORDING TO THE FOLLOWING PICTORIAL AND DETAIL:



After mounting C1 & C2, install knob (Table 4, Item 3) on each capacitor shaft. If shaft length is insufficient, the knob may be installed by using a non-conductive shaft extender such as H. H. Smith / NTT part numbers 130, 140, or 161. These are available from Newark Electronics, Gerber Electronics, and others.

Table 4: "upper level" parts list

NOTE: For bandswitch inductors, see Table 2.

*: Note follows parts list.

Vendor codes for this and subsequent parts lists:

AE = Antique Electronics /688 W. First St.
/Tempe, AZ 85281
/Tel. 1-602-894-9503

(Table 4 - continued)

DK = Digi-Key / P. O. Box 677
/Thief River Falls, MN 56701-0677
/Tel. 1-800-344-4539

MCL = Mini-Circuits Lab. / P. O. Box 350166
/ Brooklyn, NY 11235-0003
/Tel. 1-718-934-4500

MOU = Mouser Electronics / 11433 Woodside Ave.
/ Santee, CA 92071
/Tel. 1-800-346-6873

RS = Radio Shack / Many locations worldwide

Item	Designator	Description/Value	Vendor	Vendor Stock #	QTY
1	-	chassis box	MOU	537-TF-782	1
2	A1	BBA-C1 amp. card	(refer to text)		1
3	(C1,2)	knob	MOU	45KN014	2
4	*	knob	RS	274-416	7
5	B1	9V alkaline battery	RS	23-553	1
6	C1,2	var. cap., 10-365pF	AE	CV-235	2
7	C3,4	capacitor, 33 pF	MOU	232-1000-033	2
8	C5,6	capacitor, 75 pF	MOU	232-1500-075	2
9	C7,8,9	capacitor, 0.1 uF	MOU	539-CK05104K	3
10	J1,2	red banana jack	RS	274-662	2
11	J3,4	black banana jack	RS	274-662	2
12	J5,8,9	BNC jack	RS	278-105	3
13	J6	phono jack	RS	274-346	1
14	J7	battery holder	MOU	534-1290	1
15	P1	phono plug	RS	274-339	1
16	R1,2	pot., 500 ohm, linear	MOU	31CT205	2
17	R3	pot., 50K, linear	MOU	31CT405	1
18	R4	resistor, 33 ohm	RS	271-007	1
19	R5,6	resistor, 68 ohm	RS	271-010	2
20	R7,8	resistor, 4.7 ohm	MOU	29SJ500-4.7	2
21	R9	resistor, 1 ohm	MOU	29SJ500-1.0	1
22	S1	switch/4pole/6pos.r	MOU	10WR046	1
23	S2,5	switch/3pole/4pos.r	MOU	10X034	2
24	S3	switch,DPDT,on/off	RS	275-620	1
25	S4	switch/6pole/4pos.r	MOU	10WR064	1
26	S6	switch,SPDT,on-on	MOU	10TC230	1
27	T1,2,3	RF transformer, 1:1	MCL	T1-6-X65	3

Misc. items: hook-up wire, buss wire, solder, labels "AS REQUIRED"

*Item 4 note: for S1, S2, S4, S5, R1, R2, R3.

*Item 14 note: Keystone 1290 or equivalent.

Table 5: (A1) BBA-C1 Broadband Amplifier card parts list

Item	Designator	Description/Value	Vendor	Vendor Stock #	QTY
1	BD	perfboard: 1.4"X1.4"	RS	276-1396 (cut)	1
2	C1,2,5,6	capacitor, 0.1 uF	RS	272-109	4
3	C3	capacitor, 10uF tant	MOU	581-10M35	1
4	C4	capacitor, 0.001 uF	RS	272-126	1
5	H1,2,3,4	screw, 4-40 X .25"	MOU	572-01880	4
6	H1,2,3,4	spacer, 4-40 X .5"	MOU	534-1450C	4
7	H1,2,3	split lockwasher, #4	MOU	572-00649	3
8	H4	solder lug, #4	MOU	534-7311	1
9	P1-8	flea-clip/.042 hole	MOU	574-T42-1/100	8
10	Q1	transistor, 2N3866	MOU	511-2N3866	1
11	R1,5,8	resistor, 4.7 ohm	MOU	29SJ500-4.7	3
12	R2	resistor, 33 ohm	RS	271-007	1
13	R3,6	resistor, 680 ohm	MOU	29SJ250-680	2
14	R4	resistor, 2.7K	MOU	29SJ250-2.7K	1
15	R7	resistor, 1 ohm	MOU	29SJ500-1.0	1
16	RFC1	inductor, 2200 uH	MOU	434-05-222J	1
17	U1	voltage reg., 7812	RS	276-1771	1
18	W	buss wire	RS	278-1341	1

Table 6: mounting hardware parts list, comprised of tables 6A - 6E
See Table 4 for vendor codes.

Note: Mounting hardware is supplied with the following components: J1 through J6, J8, J9, R1, R2, R3, S1 through S6.

*** Table 6A - A1 mounting hardware ***

Item	Designator	Description/Value	Vendor	Vendor Stock #	QTY
1	-	screw, 4-40 X.25"	MOU	572-01880	4
2	-	split lockwasher, #4	MOU	572-00649	4

*** Table 6B - C1 mounting hardware (see Figure 7) ***

[] designators refer to hole locations from Table 3
Item 3 note: 2 pieces at hole 1; 2 at hole 3; 1 at hole 4.

Item	Designator	Description/Value	Vendor	Vendor Stock #	QTY
1	[1],[3]	screw, 6-32 X.4375"	DK	H157	2
2	[1],[3]	rubber grommet	MOU	522-211	2
3	see note	fiber washer, #6	MOU	534-3201	5
4	[3]	solder lug, #6	MOU	534-7312	1
5	[1]	tooth lockwasher, #6	MOU	572-00675	1
6	[4]	nylonscrew, 6-32X.5"	MOU	561-J632.5	1
7	[4]	hex nut, 6-32	MOU	572-00486	1
8	[4]	split lockwasher, #6	MOU	572-00650	1

*** Table 6C = C2 mounting hardware (see Figure 7) ***

[] designators refer to hole locations from Table 3
Item 3 note: 2 pieces at hole 5; 2 at hole 7; 1 at hole 8.

Item	Designator	Description/Value	Vendor	Vendor Stock #	QTY
1	[5],[7]	screw, 6-32 X.4375"	DK	H157	2
2	[5],[7]	rubber grommet	MOU	522-211	2
3	see note	fiber washer, #6	MOU	534-3201	5
4	[7]	solder lug, #6	MOU	534-7312	1
5	[5]	tooth lockwasher, #6	MOU	572-00675	1
6	[8]	nylonscrew, 6-32X.5"	MOU	561-J632.5	1
7	[8]	hex nut, 6-32	MOU	572-00486	1
8	[8]	split lockwasher, #6	MOU	572-00650	1

*** Table 6D = grounding hardware ***

Item	Designator	Description/Value	Vendor	Vendor Stock #	QTY
1	G1,G2,G3	screw, 4-40 X.375"	MOU	572-01881	3
2	G1,G2,G3	solder lug, #4	MOU	534-7311	3
3	G1,G2,G3	hex nut, 4-40	MOU	572-00484	3

*** Table 6E = hardware for battery holder J7 ***

Item	Designator	Description/Value	Vendor	Vendor Stock #	QTY
1	-	screw, 4-40 X.375"	MOU	572-01881	2
2	-	split lockwasher, #4	MOU	572-00649	2
3	-	hex nut, 4-40	MOU	572-00484	2

Table 7: wiring / component connections

Notes: I = insulated wire, approx. #22 AWG
B = bare solid (buss) wire
TP = twisted-pair (insulated)

Lengths are maximum typical required amount; in actual practice, use the shortest length possible to minimize stray coupling.

Table 7 (continued)

wire #	From	To	Description
1	J1	S4A arm	3.5" I
	[J1 connect directly to R5 side 1]		
2	R5 side 2	S3A "Terminated"	1.5" I
	[J3 connect directly to T1 pin 1]		
	[J4 connect directly to T2 pin 1]		
3	J2	S4D arm	4" I
	[J2 connect directly to R6 side 1]		
4	J3	S3A arm	1" B
5	J4	S3B arm	2" I
6	S3B "Common"	S3A "Common"	0.5" B
7	S3A "Common"	G1 internal GND lug	1.5" B
8	S3A "Common"	R1 CW	4" I
9	G1 internal GND lug	T1 pin 6	2" I
10	G1 internal GND lug	T2 pin 6	2" I
11	R6 side 2	S3B "Terminated"	4" I
12	T1 pin 3	S4A "Noise Reduction"	3.5" I
13	T2 pin 3	S4D "Noise Reduction"	4" I
14	T1 pin 4	S4B "Noise Reduction"	4" I
15	T2 pin 4	S4E "Noise Reduction"	4" I
16	C1 rotor	S4B arm	3" I
17	C1 stator	S4C arm	2.5" I
18	C2 rotor	S4E arm	3" I
19	C2 stator	S4F arm	2" I
	[R7 side 2 connect directly to S5A "Phaser/Amp."]		
20	R1 CCW	R7 side 1	6" I
21	R1 arm	jct. L1 through L12	2" I
22	R1 CW	S4B "Normal"	2.5" I
23	S4B "Normal"	S4B "Short"	0.5" B
24	S4E "Short"	S4E "Normal"	0.5" B
25	S4E "Short"	G3 internal GND lug	2.5" I
	[C3 side 1 connect directly to S4A "Normal"]		
	[C5 side 1 connect directly to S4A "Short"]		
26	S4C "Normal"	S4C "Short"	0.5" B
27	S4A "Short"	jct. C3side2/C5side2	1.5" I
28	S4A arm	S4B "Long"	1" B
	[C4 side 1 connect directly to S4D "Normal"]		
	[C6 side 1 connect directly to S4D "Short"]		
29	S4F "Normal"	S4F "Short"	0.5" B
30	S4F "Short"	jct. C4side2/C6side2	2.5" I
31	S2A "Line 2"	S4C arm	2" I
32	R3 arm	G2 internal GND lug	1.5" I
33	R3 CCW	S1B arm	4" I
34	R3 CW	S1A arm	2.5" I
35	S2A "Line 1"	S4F arm	2" I
36	S1A arm	S2A "Line 2"	4" I
37	S1B arm	S2A "Line 1"	4" I
38	S1C arm	S1D arm	1" I
39	S1D arm	G2 internal GND lug	3" I
40	S2A arm	S2C "Null-b"	0.5" B
41	S6 "Wire"	jct. L13 through L24	4" I
	[C7 side 1 connect directly to J8]		
	[C7 side 2 connect directly to R4 side 1]		
42	R4 side 2	S6 "Loop"	4" I
43	S6 arm	R2 arm	3" I
44	R2 CW	S4E "Short"	2.5" I
45	R2 CCW	T3 pin 1	4" I
	[T3 pin 3 connect directly to G2 GND lug]		
46	S2B arm	T3 pin 4	2.5" I
47	S2C arm	T3 pin 6	2.5" I
48	S2B "Line 2"	G3 internal GND lug	1.5" B
49	S2B "Line 1"	S2A arm	1" I
50	S2B "Line 1"	S2B "Line 2"	0.5" B
51	S2B "Line 2"	S2B "Null-a"	0.5" B
52	S2C "Null-a"	S2C "Line 2"	0.5" B
53	S2C "Line 2"	S2B "Null-b"	1" I
54	S2B "Null-b"	R8 side 1	3" I
	[R8 side 2 connect directly to S5A "Phaser/Amp."]		
55	S5A "Phaser/Amp."	S5C "Phaser/Unamp."	1.5" I
56	S5A "Phaser/Unamp."	S5A "Spare/Unamp."	0.5" B
57	S5A "Phaser/Unamp."	G3 internal GND lug	1.5" I
58	J9	S5A "Spare/Amp."	4" I
59	S5A "Spare/Amp."	S5C "Spare/Unamp."	2" I
60a	S5A arm	A1-P1	4" TP
60b	S5A "Phaser/Unamp."	A1-P2	4" TP
	[R9 side 1 connect directly to J6 (center pin)]		
	[R9 side 2 connect directly to C9 side 1]		
	[C9 side 2 connect directly to J6 ground lug]		

Table 7 (continued)

wire #	From	To	Description
61	S5B "Spare/Amp."	jct. R9side2/C9side1	2.5" I
62	S5B "Phaser/Amp."	S5B "Spare/Amp."	1" I
63	S5B arm	A1-P3	4" I
64a	S5C "Phaser/Amp."	A1-P5	4" TP
64b	S5A "Phaser/Unamp."	A1-P6	4" TP
65	S5C "Phaser/Amp."	S5C "Spare/Amp."	1" I
	[J5 connect directly to C8 side 1]		
66	S5C arm	C8 side 2	2.5" I

OUTSIDE BOX

wire #	From	To	Description
67	J7 terminal pin	P1 plug - center pin	2" I
68	J7 terminal pin	P1 plug - shield pin	2" I
	[P1 connects to J6 for battery operation]		

Table 8: control orientation conventions

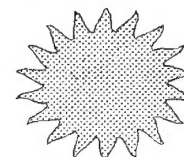
Ensure that components are mounted and wired in accordance with this table; align knob pointers to clock positions indicated. Orientations are as viewed from outside the chassis box assembly.

Side	Control	Orientation Conventions
top	C1	CCW = minimum C = 9:00; CW = maximum C = 3:00
top	C2	CCW = minimum C = 9:00; CW = maximum C = 3:00
top	R1	CCW = maximum level (no attenuation) = 7:00 CW = minimum level (maximum attenuation) = 5:00
top	R2	CCW = maximum level (no attenuation) = 7:00 CW = minimum level (maximum attenuation) = 5:00
top	R3	CCW = maximum level/Q Line 1 (min. Line 2) = 7:00 CW = maximum level/Q Line 2 (min. Line 1) = 5:00
top	S1	[see Table 2]
top	S2	Line 1 = 10:30; Line 2 = 11:30; Null-a = 12:30; Null-b = 1:30
left	S3	common = left; float = center; terminated = right
top	S4	long = 10:30; normal = 11:30; short = 12:30; noise-reduction = 1:30
top	S5	phaser + amp. = 10:30; phaser = 11:30; spare antenna = 12:30; spare antenna + amp. = 1:30
top	S6	wire = up; loop = down

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Times are local per Muse; submit double-spaced only.

BEN DANGERFIELD - 202 GOVERNORS DRIVE - WALLINGFORD, PA 19086

----- The hot summer days seem to have brought an improvement in TA DX here, with the Norwegian giant on 1314 again pounding in during the mid evening hours, and about 30 other hets and weak signals, including one on 1197 that I think was Agadir, Morocco. Saturday night at 11:45 I had a rocker on 1620 that I presume was a pirate station. The silence of WWJZ-640 must be some kind of record for a quick hook of a new station, especially since their commercial accounts seemed to be growing. The Philadelphia Inquirer says it's a dispute between the 2 station owners. I did like the music they played. In July, we spent 12 days in Hawaii, 7 on Kauai Island and 5 on Maui (to cool off, I tell everybody!) At Kauai (was last there in 1975), we stayed with friends in a condo at Princeville, on the N coast. Any DXer who tuned a radio in Hawaii will agree that the volcanic mountains are a huge factor on every island. Not only do they influence the local and inter-island reception, they will block out the trans-oceanic signals when they are between the station and your receiver, and this goes for most sky wave paths. The N shore of Kauai is a case in point. KUA1-720 is directly across the island from Princeville, at Eleele, about 20 miles straight, but separated by 6000 ft. mountains. Its signal barely made it to our location. KQNG-570, Lihue, is 3/4 of the way around the island, but its signal is no stronger than most of the Honolulu stations. As a matter of interest, all 17 of the currently operating Oahu stations are heard rather well days at our Kauai location, the best being KIAM-870 & KIKI-830. Of the other islands, only KIPA-620 & KKON-790 are any good in the daytime. Of course, KIPA has one of the two synchronized transmitters on Hawaii island's W coast. At night, all 27 island stations come in well. At Princeville, starting at sunset and getting better throughout the evening, there are W coast NA stations from Canada, WA, OR & CA on every open frequency, some semi-local in strength. Even KSL & KVOO were good, and also XENZ-890 in Sinaloa. All this on my SW1 with extra antenna and using electric power. But the real fun begins around midnight, then the other side of the Pacific comes through. In my week of listening, I picked up 15 Japanese stations, one N Korean and Vladivostok-1251. The Japanese stations on 1242, 1260 & 1440 were atop their frequencies with baseball. But nothing at all was heard from the S Pacific, this area presumably blocked out by mountains. I had high hopes of hearing S Pacific stations when we spent our 5 days at the Inter-Continental on the SW coast of Maui, especially because of our ocean front room only 75 feet from the water, I was disappointed. At night, only the 27 Hawaiians were heard with the exception of a very weak signal from Tuvalu-621. Nor was any W Coast NA heard (In our 75 trip, we stayed on the E coast and heard many NA W Coasters). So again, it was probably the effect of the mountains, highest of which was Haleakala, looming up right in back of us at 10023 feet. We drove our car up to the high point, and the daytime stations from all of Hawaii's stations are good on the car radio, some of them even fade in/out at noon! We are now heading for a week in S WV, a week in the Thousand Island region and 2 weeks in E Europe. I shall report after all that!

ERNEST J. WESOLOWSKI - 13312 WESTWOOD LANE - OMAHA, NE 68144-3543

----- Greetings from Big-O! Summer DXing has shifted to SW and the construction of a 65 ft. Lw running N/S with RG58 leading in. Excellent on SW but only marginal on the BCB compared to the Radio West loop. But, less noise. Enjoyed meeting 27 DXers at the Billings, MT IRCA convention and thanks to MIKE HAWK in getting me to attend WFTDA's convention in Music City, TN. Member TOM BRYANT did an excellent job as co-host with DOUG SMITH. If my Dad's health holds up, I am planning to be at Enfield via car with RICK DAU & DAN BARTEK, arriving Thursday PM. Plans to drive to PQ & NB have been cancelled due to Dad's illness. PAUL SWEARINGEN & I have talked about putting together a video on past NRC conventions but we need help! If you or anyone you know has either prints or slides of past conventions, please drop me a note giving me the years/cities that you have that you could send to me for the video convention. Do not send material now! I'll let you know via page 1 when we will be ready. Material will be returned to you within 30 days. Also, if you have a good copy of the convention booklet for those years, we will need a front cover of each. DXers in the pictures should be ID'ed. More later. KOIL-1290 is back after their xmtr fire. KKAR-1180 & KOIL-1290 plan to swap frequencies soon and will simulcast for 2 months. KLNG-1560 was noted off on 8/3. '73's

RICK DAU - 917 E. COLLEGE STREET #6 - IOWA CITY, IA 52240-5513

----- Greetings from IA, the world's largest island! At the conclusion of my last MUSE, I promised a detailed account of my mid-May excursion to LaCrosse, WI. On Fri., the 21st, I departed, making a noontime visit to KNEI-1140 (NE

corner of the state). Got a good tour from ND Dave Hogendorn and ancr Tom Brehmer (his call sign is NØLOH and can be found on 2 meters). KNEI is still sunrise to sunset only, one of a shrinking number of US stations with that distinction. Moved to LaCrosse, and the 4th CTC of (mostly) SW DXers hosted by Jim Conrad. Most of the regulars showed, DX author Gerry Dexter, IRCA's Tim Noonan, and various others from around the Badger State, PLUS some 1st timers, ERNIE WESOLOWSKI & DON MOORE! About a dozen were in attendance for a rainy weekend at the Holiday Inn LaCrosse. A few of us were lucky enough to get a Sat. AM tour of WETV 980. About noon on Sunday, Ernie & I ventured even further N, making an overnight stop in Ironwood, MI. Quite cold there for late May! Monday morning 2 afternoon stops were at WMSM 590/WMT-99.7 in downtown Ironwood, WHSM-910 on 7 in Bayward, WI & WAQE-1090/97.7 in Rice Lake, WI. A very enjoyable weekend, if not for the rain. Now, to the present. I had planned to attend this year's convention in Enfield, but nearly \$100 in car repairs, plus a speeding ticket throw those hopes out the window. Hope everyone has a great time there, maybe I can make it to next year's, wherever it will be! I will be running the NRC contents again this fall, even though I will not be participating. Starts Oct. but the rules will be appearing in DX NEWS very shortly. Also, be looking soon for information on the 3th annual Hawkeye Autumn DX (HADX) get-together, which will be in Dubuque on Oct. 10-11. LXIII & see you next time!

BOB MCCOY - 3618 COOPER AVENUE #6 - LINCOLN, NE 68506

----- Hello from the Rainbelt! While not as bad as the Mississippi and other areas to the E & S of here, the rain/storm/flooding are bad enough here for me. I go out on storm watches with other hams in the ARES and we are getting called out every night and sometimes during the day. I haven't gone on every one but the last one was really hairy with 80 MPH winds and flying trees! The radio situation in the area has also been quite volatile. KHAT-1530 went silent April '80, the land was more valuable than the station. KMEN-1480 finally got on the air on June 16th with a nostalgia format, some live/some satellite. It's nice to have KMEN on as the city was a little vulnerable in regard to emergency AM coverage; KFOR-1240/KLIN 1400 share the same tower. KOIL-1290 was sold and had a transmitter fire the same day, getting back on the air in late June. Sometime soon, KKAR-1180 will move to 1290 and KOIL will go to 1180. KKAR is all talk but KOIL may change from the current CW simulcast with its FM. I have been DXing mostly with a Sony Walkman SRF M30 AM/FM portable. I called SONY and asked if their combination radio/tape units with the PLL digital radio was the same circuit as to AM. They said all of their digital radios had the same wideband AM performance. I might check this for myself! I hope that PAUL is still keeping his head above water! Have a good summer! '73's

TOM BRYANT - 849 TODD PRIES DRIVE - NASHVILLE, TN 37221

----- A big THANK YOU to the NRC for publicity in DX NEWS for the recent WFTDA convention in Nashville. The event was a big success and several of the 33 registered were NRC members. Special thanks to ERNIE WESOLOWSKI (who isn't even a WFTDA member!) for offering video footage and for his help in resolving some problems encountered by another. Wish I could join you in Enfield, but all my vacation time is booked for the rest of the year, maybe '94! A final note, I got a KIWA loop about 3 months ago and have been well pleased with the results. It's a pretty hefty price tag but the rewards are worth it!

JOHN SAMPSON - 4949 ALDRICH AVENUE SOUTH - MINNEAPOLIS, MN 55409

----- Greetings again. Although DX here has been limited to regional MN & WI stations (between thunderstorms), I've had some success including WEVE-1340, WNAM-1280 (with strong local WWTP well muted), KMRS-1230 under semi local KYSM, & KKSO-1390. Also with the summer spate of highway construction, temporary TIS/Highway Advisory Radio stations are in considerable use here. During a 3 week period in June, 3 stations were on the air (2 on 1610 & 1 on 530) for some construction near downtown Minneapolis. The stations went off for several weeks and now, at this writing, have been relocated and returned to the air for construction in St. Paul (again, 2 on 1610 & 1 on 530). All of the stations are using the call WPRX280 (and are probably the same transmitters as those that used the WNMQ215 call for a couple of weeks last summer). Also, semi-local KMOM-1070 returned to the air in June after about a years hiatus. Enjoyed the 'Conrad Family Reunion' DX gathering in LaCrosse in May. It was fun to see ERNIE WESOLOWSKI, RICK DAU, Gerry Dexter (after about 35 years!) and meet other area DXers. On a recent trip to Key West, noted (as STEVE FRANCIS recently reported), the Cubans audible under Radio Marti on 1180 while driving through Marathon. Radio Marti was also fairly strong in Key West, but again subject to interference (interesting to me, since I was unable to hear them when on Marco Island last February). No sign of the het on 1000, so noticeable last spring. Since February, CMBF, Radio Mundial National, moved from 950 to 1260. They were one of the stronger stations in Key West. A sporadic "Radio Metropolitana" was noted on 950, they announced Havana as their location and were also quite strong when on. While on the N beach on Bahia Honda Key, noted the 1610 TIS station near Everglades City (with mentions of the Everglades and State Road 29). The station wasn't on last February, no call was given. The Miami station on 990 still does not seem to be on. Until next time, 73s.

DARIO MONFERINI - VIA DAVANZATI 8 - I20158 MILANO, ITALY

----- Hi to everyone! I have gotten a follow up letter from my friend ERNEST COOPER asking about my silence over this column! So here I am to update the news from "Tangentopolis" town in "Bella" Italy, as they have recently renamed my town. I am still working at Multinational Philips as the telephone operator "Pronto Philips". DXing on MW has been very poor outside Europe in the last 3 years. Some openings have been noted but very short and rarely, at 0000-0300 UTC. This has been the main reason for my silent period and the reason my efforts have been mainly devoted to the tropical bands on SW. Now that the solar flux is coming down, this will be a good reason to hope that MW conditions for the coming autumn will be good and I will surely be looking at the band as in the 70's. Looking at the most recent changes in the MW band here, I can tell you the following: Radio Brod "Droit de Parole"-720 operated from a boat in the Adriatic Sea in the area of the Dalmatia coast but was silenced after 80 days following a formal protest from the Beograd government. The boat was not registered in their country so in fact they were pirates in all sense! The St. Vincent government also confirmed the boat was not registered in their office so Radio Brod closed. From Catalunya, Radio Terrassa changed frequency to 1116 (ex 1341); 10000 watts. However, this change was met with not good results since RAI PISA operates with 50000 watts on the same frequency, just located in front of Catalunya. A program change, Radio Montecarlo-702 since June 21, operates in English with "Riviera Radio" service // to the FM and their Italian service is now only heard on FM, financial problems at Radio Montecarlo brought that on. I will do my best to let you know the news from time to time from here, please keep up the good level of information of OUR club and my warmest regards to all the ones who will take part in the 60th year convention! 73s! One final note: on 7/1, the German on 1539 (transmitter in Mainflingen) is now Deutsche Welle, ex-Deutschlandfunk.

ELLIOT R. STRAUS - 980 COOPER DRIVE - TOMS RIVER, NJ 08753

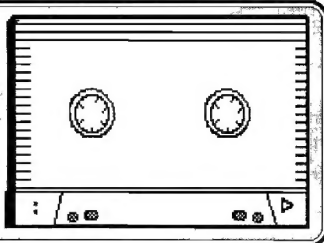
----- Well, it is now mid July and very hot here in the NE and DX is pretty far from my mind. As a matter of fact, I've only had 3 sessions in the last month! I could use some help on the following stations, I've sent each one an original report to the CE, follow-up to the GM and a prepared card to the PD and had no responses. If anyone has any idea on verifying these stations, I would appreciate any help: WIBG-1020 (Rick Brancadora, owner-DWS), WLUP-1000, WPCR-1540 (all of the people I knew there have left!-DWS), WBZY-1200, WADN-1120, WARA-1320, WKZE-1020, WWRV-1330 & WJOX-690. I'm looking forward to Enfield in Sept. and using my new KIWA loop in the fall. I picked up 115 new veries in 3 months this spring so hopefully this fall will be as good. Dave, I can't think of anything else worth commenting on so I'll just sign off with best 73s to all!

DAVE SCHMIDT - P O BOX 11502 - WILMINGTON, DE 19850

----- Being involved with the engineering in a number of stations in the area (looks like we just added WYRE-810/WXZL-103.1!), the problem with no-response-to-reception-reports appears to be a couple of items, some stations just do not have the staff to respond, with the advent of satellite programming, the staff is smaller and smaller (WKEN operates 24 hours a day, 7 days a week with 4 people including the part-timer!). Most stations do not have a full time CE so sometimes that person may be too busy to reply (but should when time permits as a courtesy at least, my policy-hi!). Often, when a report comes in, someone will ask what to do with the report, since they have no idea what it is for or what they want. I don't know what the solution would be, maybe that would be a good idea for discussion in MUSINGS? Your thoughts would be welcomed. I suggest personal contact with the station, we have a number of members who like to visit these places in their travels, the Broadcasters Guide to DXing would be a good piece of ammo to have lined up when sending a follow-up report. My trick would be to send a follow-up in the idea of a SALES ORDER, requesting info on rates, your coverage and a verification of reception! Anything to do with sales gets IMMEDIATE attention at ANY station! As the new season rounds the bend, lets make the 1st issue of the new season our annual REINTRO issue, a chance for the members to let the other members know who they are, etc. NEW MEMBERS ARE CERTAINLY WELCOME TO SEND IN A REPORT! Our deadline is 7 days BEFORE the deadline in Topeka, always. BEN DANGERFIELD may be right on the WWJZ situation, they didn't seem to last too long, their tests when setting up the directional system may have last longer! Still no word on their return. CU at Enfield!

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The 60th Anniversary

The National Radio Club is pleased to announce that its infamous SWAT TEAM has returned from a recent deployment, just in time to host the NRC's 60th Anniversary Convention.

The Convention will be held Labor Day Weekend, September 3rd, 4th, 5th, and 6th at the Harley Hotel of Hartford/

Springfield in Enfield, Connecticut.

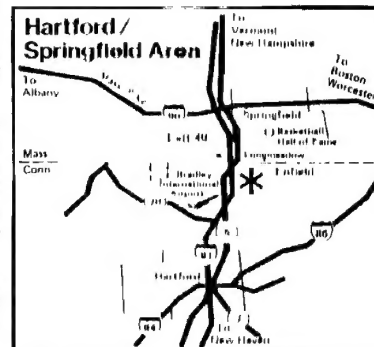
Contrary to previous statements, the SWAT TEAM is not incarcerated yet. And just as in the past, it will endeavor to make this year's Convention a BLAST! Join us for a glorious weekend... enjoy a "Thrill-a-Banquet" on the patio, the NRC Auction, "The Quiz", the "Find the Sticker" contest. John Bowker, Mark Connolly and Tony Fitzherbert will do their thing and the SWAT TEAM will do theirs.

The Harley is located at 1 Bright Meadow Blvd., Enfield, Connecticut 06034 (I-91 at U.S. Route 5, Exit 49). I-91 runs north-south between the Alena Lupetta Turnpike (I-90) and the Connecticut Turnpike (I-95).

The Harley has a shuttle bus between Bradley International Airport in Windsor Locks, CT and the hotel. The hotel's phone number is (203) 411-2211.

A form is included for room reservations. The single or double price is the same, \$59 per night, plus 6% state tax. Reservations must be made directly with the hotel. The NRC Convention Committee will not be getting involved with room reservations or room sharing.

A registration fee of forty dollars (\$40), which includes the banquet, may be paid in advance. Checks payable to the "National Radio Club" may be sent to NRC Convention - P. O. Box 118 - Popponesset, CT 06064.



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Check-in: 4:00 P.M. Check-out: 11:00 A.M.

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Questions, suggestions, etc., may be sent to Box 118; an SASE is required if an answer is desired. Bring items for the Auction. The 50th Anniversary Convention had about 70 attendees; let's try to better that mark.

-THE WIZ

The Harley of Hartford/Springfield is pleased you have chosen us for your upcoming visit. We look forward to serving you while you are in our area.

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- 2) Print below the entire number of your credit card. We accept the following: MASTERCARD, VISA, DISCOVER, AMERICAN EXPRESS or DINERS CLUB. Please include the expiration date.